SCOTTY SS
WOOD FURNACE
Model DB-202A

OWNER'S MANUAL

IMPORTANT

READ OWNER'S MANUAL THOROUGHLY BEFORE INSTALLING FURNACE OR LIGHTING FIRE.

CONSULT LOCAL AUTHORITIES IF IN DOUBT ABOUT YOUR LOCAL FIRE SAFETY REGULATIONS.

ALL INSTALLATIONS MUST BE MADE IN ACCORDANCE WITH LOCAL AND STATE OR PROVINCIAL CODES WHICH MAY DIFFER FROM THIS MANUAL.

IMPROPER INSTALLATION WILL RESULT IN VOIDING OF WARRANTY.

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KERR SCOTTY SS Wood Furnace Model DB-202A

Certified by the Canadian Standards Association (CSA) Sept. 1982 and Sept. 1988

Manufactured by: Parrsboro Metal Fabricators Ltd.
12118 Highway 209
P.O. Box 637, Crossroads
Parrsboro Nova Scotia, Canada
B0M 1S0

Specifications

Length		34”
Width		22 ½”
Height		43”
Shipping Weight		238 lb
Fire Box 1/8”plate	Length	27 ½”
	Diameter	18”
Secondary Heat Exchanger		14 gauge steel
Fire Box Door	Cast Iron	12” x 12”
Warm Air Plenum		29” x 20 ¾”
Return Air Plenum		Not Applicable
Air Filter Size		Not Applicable
Blower Size		Not Applicable
Blower Motor		Not Applicable
CFM		1000 (Required)
Smoke Pipe		7” Inside Diameter
Floor to smoke pipe center		36”
Output (max):		70,000 Btu/h
Fuel:		Wood up to 24” logs
Electrical Rating:		Volts 120, Cycles 60, Amps 15

NOTE – Keep this manual in a safe place for future reference. Follow manual carefully for the correct way to install and operate this unit.

CAUTION – Do not fire this unit until operating instructions have been read and fully understood.

INSTALL WOOD FURNACE ONLY ON A FURNACE DUCT SYSTEM AND CHIMNEY THAT ARE IN GOOD CONDITION.

SAVE THESE INSTRUCTIONS

SECTION 1 – OPERATING INSTRUCTIONS

1.1 Introduction

Congratulations on your purchase of the KERR SCOTTY SS Wood Furnace. Developed in Atlantic Canada, this KERR Furnace has been designed to allow you to heat your home with wood, one of North America's most abundant fuels. Designed with you in mind, the KERR SCOTTY SS Wood Furnace will provide you with many years of safe, efficient central heating.

To ensure you have a clear understanding of the operating procedures of this furnace, please take the time to read the remainder of this section on operating procedures. If you have any questions, your KERR dealer will be happy to answer them for you.

1.2 Wood-Burning

The SCOTTY SS Wood Furnace will burn most wood fuels, however it is recommended that only dry, seasoned hardwood be used as much as possible since it affords cleaner, safer and more efficient operation. Burning seasoned hardwood will leave less ash, soot and creosote residue and will require fueling less often. Use smaller loads of wood on warmer days.

WARNING: **DO NOT** use chemicals or fluids to start the fire or during operation.
DO NOT burn driftwood or manufactured logs (compressed wood).

Before adding fuel to an existing fire turn up the thermostat for about five minutes or lift damper chain to hold damper fully open for about one minute before opening the loading door. This action will allow residual smoke to clear from the combustion chamber and reduce smoke entering the basement during refueling.

Twice daily refueling may be sufficient in modern well-insulated homes. However, KERR recommends that small fuel loads be added morning, noon and early evening and late evening, rather than large quantities infrequently. A small intense fire will burn more efficiently than a large smoldering fire in the SCOTTY SS Wood Furnace and will produce less creosote.

When refueling the SCOTTY SS, the remaining coals should be raked to the front of the combustion chamber before adding any new fuel. Place the fresh supply of wood to the rear of the combustion chamber. This gives more of an even cigar type fuel burn, rather than a large hot fire to a slow amber fire. This will help create a more even and efficient burn. The SCOTTY SS owner should attempt to gauge fuel quantities with outdoor temperatures; a little practice will provide greater satisfaction and efficiency.

WARNING: This furnace is not to be used with an automatic stoker.

Keep firing door tightly closed and maintain door seal in good condition.

IN CASE A SERIOUS CREOSOTE FIRE BEGINS:

a) Close the damper door by disconnecting chain
b) Close all draft regulators
c) Throw ½ lb of coarse or table salt on the fire and close door immediately.
d) Call the FIRE DEPARTMENT at once!

Have a firmly established Emergency Procedure in place for the handling of a flue fire.

CREOSOTE

Wood combustion is never 100% complete. Wood smoke always contains some unburned gases and a mixture of unburned tar-like liquids. A percentage of these materials will condense out on any cool surface, leaving a dark brown or black substance with an unpleasant acrid odor. This substance is commonly called creosote.

If these wood gases condense out on cool surfaces such as a cold chimney or a long smoke pipe, they retain large amounts of water and will be very fluid. At higher temperatures the condensed creosote will resemble tar (thick and tacky).

Creosote generation is highest during low heat outputs common with long smoldering burns. Creosote generation is lowest during high heat outputs common with intense fires. It is recommended that a small intense fire be used for best results against creosote build up even though the wood furnace will require refueling more often.

Creosote generation is also higher when burning green wood. The moisture in the green wood absorbs the heat from the fire, cooling the fire below the point at which the creosote can be consumed. The low temperature smoke is then further cooled in the upper furnace chambers' smoke pipe and chimney allowing large amounts of creosote to form.

To reduce creosote build-up during periods of low heat requirements (i.e. Spring and Fall) it is recommended to fuel the wood furnace with smaller quantities of smaller diameter logs. Matching fuel loads and heat requirements will result in cleaner combustion and higher efficiency.

1.3 Storage of Wood

Once cut, green wood dries (or seasons), quickly at first and then at a slower and slower rate. When the wood has been cut to the proper length and split, it should be piled outside during the summer months. Place two poles on the ground to serve as rails to keep the firewood off the moist ground. Stack the wood so that both ends of the logs are exposed to the air if space is available, since more drying occurs through the cut ends than through the sides. This is true even with wood that has been split. The woodpile should be under cover so that it will not absorb moisture from the rain and snow before it is used, but still open on the sides and ends to the drying effect of the wind and sun. Store wood in neat, well-supported piles.

1.4 Maximum Solid-Fuel Charge

The maximum level for a solid-fuel charge is the middle of the loading door, or the level of the handle. **DO NOT OVERFILL.**

The KERR SCOTTY SS Wood Furnace will accept whole or split logs up to 27 inch (686 mm) long, but a 24 inch (610 mm) log length is recommended for convenience and ease in handling.

Maximum damper gate opening is 9/16". Do not tamper or adjust to greater opening in an attempt to increase fire or over-firing and hazard may result.

1.5 Maintenance

Some regular maintenance is necessary on the KERR SCOTTY SS furnace. A good practice is to establish a routine for the storage of fuel, care of the appliance, and firing techniques.

1.5.1 Cleaning (Fig S202-10)

The KERR SCOTTY SS Wood Furnace must be cleaned regularly to maintain top efficiency. The furnace needs cleaning more often when burning green wood, or during long periods of low fire. When the KERR SCOTTY SS Wood Furnace is first installed the furnace heat exchanger should be checked visually from the firebox and smoke pipe hole every week to determine the rate at which creosote or ash is accumulating within the furnace. Cleaning should be done whenever there is more than ¼ inch of build-up on the heat exchanger or 3 inches of ash in the base. See FIG. S202-10

CLEANING PROCEDURE:

(1) Make sure fire is completely out and the furnace has cooled.
(2) Remove the smoke pipe, located on the rear of the furnace heat exchanger.
(3) The heat exchanger is now accessible for cleaning.
(4) Use the scraper provided to remove all soot and ash from the furnace heat exchanger and exposed surfaces.
(5) Scrape all residue ash in the top heat exchanger towards the front of the furnace where it will fall into the firebox.
(6) Always check flue pipe for creosote or ash build-up in the pipe and clean if necessary.
(7) Reinstall the smoke pipe making sure that all joints are secured with at least 3 sheet metal screws.
(8) Check chimney cleanout for ash build-up and remove any accumulation.
(9) Residue may be removed from the firebox or left to be burnt during the next fire. It is good practice to leave a layer of ash approximately one inch deep in the base of the firebox.

DISPOSAL OF ASHES

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

WARNING – Ashes usually contain live dormant coals, which may burn for many hours after a recognizable flame has disappeared. Use extreme caution when handling and disposing ashes.

IMPORTANT – No other waste shall be placed in this container.

1.5.2 Servicing

The furnace air filter must be checked monthly and replaced when necessary. Annually lubricate the blower motor, if it is not permanently lubricated, with 4-6 drops of SAE-30 oil in each bearing.

CAUTION: Failure to keep air filter clean will result in poor furnace performance and possible damage to wood furnace heat exchanger.

1.6 Safety

If the furnace overheats due to improper operation the following precautions should be taken:

(1) **DO NOT** shut off power. The blower must be kept running to disperse excessive heat.
(2) Manually close the damper door by unhooking the chain.
(3) Check controls for proper operation before starting a new fire.

WARNING – The maximum opening of the combustion air damper is preset at the factory.

DO NOT adjust the stop or attempt to increase the combustion air by any means.

1.7 Controls

Thermostat

The primary control is the room thermostat located near the center of the house on the main floor or near an existing thermostat. The thermostat operates the damper motor to open and close the damper door thus allowing more or less air into the combustion area to control the fire.

Fan and Limit

The fan and limit control mounted in the plenum controls the operation of the circulating blower and prevents the furnace from over-heating. When the air temperature in the plenum reaches the "ON" set point of the fan switch (usually 140º F (60º C)) the blower starts and runs until the plenum cools to the "OFF" set point (usually 100º F (38º C)) when the blower is switched off. The limit function in this control is usually set at (280º F (138º C)) and will override the room thermostat to close the damper door if the furnace overheats, and will also prevent the oil furnace from starting.

1.8 Electrical Power Failure (Fig S202-3A)

If no one is home during a power failure, the damper will automatically close and some gravity heating will take place. Combustion air will continue to enter through the secondary air holes and a fire should be maintained.

IMPORTANT – This furnace is CSA certified for operation under Power Failure only if optional gravity air inlet kit is installed.

For optimum heating during a power failure follow the procedure listed below:

(1) Remove the power failure gravity air inlet cover before starting or refueling during power failure. The cover is an option available from your KERR dealer. The kit must be installed on the cabinet side directly opposite to the entry of the blower or oil furnace "S" connection ductwork. (See Fig. S202-3A).

(2) Manually open the blower compartment access door of wood or connected oil furnace to allow gravity flowing air to all areas. (Check with your installer)

(3) Place a coin under the damper flap in such a way that it will fall clear when power is restored.

(4) Maintain a careful watch on the furnace temperature. If it should exceed 200º F (95º C) close the damper door.

(5) Do not leave the furnace unattended in this position.

(6) Refuel frequently with small load to maintain a small fire at ½ normal maximum volume.

(7) Do not expect to maintain maximum comfort under no power conditions.

(8) Do not allow anyone who is unfamiliar with the operation of the furnace to attend it during a power failure.

1.9 HOMEOWNER CHECKLIST

(a) Keep area around unit clean and clear of combustibles.

(b) Use only dry wood. **DO NOT** burn garbage, gasoline or naphtha.

(c) Load carefully.

(d) Remove ashes as directed.

(e) Watch for soot build up in smoke pipe – clean regularly.

(f) Clean furnace heat exchanger regularly.

(g) Be aware of danger due to over firing of the unit.

(h) Do not load above maximum loading level (middle of loading door) or overheating may result.

(i) This unit is **NOT** suitable for automatic stoking.

(j) Load carefully. Do not slam fuel against rear or sides of firebox, this may damage the firebox.

(k) Always observe the following minimum clearances to combustible materials – Front 48” (1220 mm); one side 6” (152 mm); opposite side and rear 24” (610 mm); and flue pipe 18” (465 mm).

(l) Do not store solid fuel within the above clearances or within the space required for charging and ash removal.

(m) Establish a routine for storage of fuel, care of the appliance, and firing techniques.

SECTION 2
INSTALLATION INSTRUCTIONS

SECTION 2 – INSTALLATION INSTRUCTIONS

2.1 Introduction to Installers

Before installing this KERR SCOTTY SS Wood Furnace, please read the following instruction manual carefully. This unit is designed to be an add-on to a central heating furnace to provide complete central heating in medium sized well-insulated homes. Before installing be sure unit is properly sized for the intended application. Warranty does not cover misapplication of unit.

Applicable Standards

The KERR SCOTTY SS Wood Furnace must be installed in accordance with the requirements of the National Fire Protection Association codes, the Canadian Heating, Ventilation and Air Conditioning Code, The National Board of Fire Underwriters, and the CSA Standards for solid fuel burning equipment as outlined in B365-01. In all cases consult your local authorities and fire insurance company for specific regulations.

2.2 Uncrating

When you receive your KERR SCOTTY SS Wood Furnace, check it carefully to ensure that all components are present and in good condition. If there has been any damage or loss in transportation, please notify the carrier and retailer at once. Inspect for the following:

1. Firebox/Heat exchanger
2. Poker/Coals rake
3. Marking template (return air and power failure bypass inlet)

CONTROL KIT A (Oil add-on), or **E** (Electric add-on) selected according to installation, which includes:

1. L4064R Fan and Limit Control
2. Control Mounting Plate
3. Damper Motor
4. Thermostat (T822D or equivalent)
5. Wiring Harness and Parts
6. Switching Relay R8405C (8A05A – 4) – Kit “A” & “E” only

NOTE: Some parts may be packed inside furnace firebox. Check shipment carefully before assuming shortage.

2.3 Locating the Furnace (Fig S202-1, Fig S202-3B)

The location of the furnace must be as close as possible to the tile-lined brick chimney, or factory-built solid-fuel approved chimney (ULC S629). Keep in mind also the day-to-day operation, and place for ease of fueling and cleaning. KERR recommends installation, if possible, in a central location in relation to the outlet registers and the use of large warm air ducts to improve heat distribution during a power failure.

It is important to provide adequate combustion air to the furnace. It may be necessary to add a ventilator to an exterior wall of a closed furnace room or an airtight basement.

The furnace must be installed so that the clearances as shown in Figure S202-1, or those of local authorities are met. Also if the furnace must be installed on a combustible floor, a non-combustible base must be built as shown in Figure S202-3B. Two layers of hollow masonry block (4" thick) are placed at right angles to each other so that the ventilation holes of one layer are opposite to those of the other layer. Also there must be a minimum of one layer of fireproof board and one layer of 26 galvanized metal beneath the masonry blocks. This base must extend beyond the furnace to a minimum distance of 18 in (457 mm) in front and 8 in. (204 mm) on all sides.

2.4 Flue Pipe and Chimney

The furnace must be located to meet a minimum venting distance needed between the furnace and the flue. It should also be ducted so that there are a minimum number of elbows used. The flue pipe must be installed with a gradual rise of ½" or more per foot from the furnace to the flue.

NEVER ALLOW THE SMOKE PIPE TO RUN DOWNHILL TO THE FLUE!

The smoke pipe and chimney should be at least 7 inches in diameter. The flue pipe or a chimney may be of different cross-sectional area than that of the appliance smoke pipe, provided that sufficient draft is available at the appliance. Space must be provided around the smoke pipe and the back of the furnace to allow easy access for the purpose of cleaning. Smoke pipes must not be lighter than 24 gauge black steel. All pipes must be securely fastened with at least 3 sheet metal screws at every joint, and properly supported.

Always meet or exceed flue pipe clearance specifications - 18" clearance from flue pipe to combustibles in all directions.

Connect the furnace only to an approved chimney suitable for solid fuel appliances, which has a flue size equal or greater than furnace smoke pipe outlet area. The chimney must be installed with proper clearances above roof and from adjacent structures and trees. If a masonry chimney is used it must be in good condition and be equipped with a tile liner. Flue thimble or flue pipe must not extend into the chimney flue, as it will reduce the draft.

Connect only to a flue or chimney capable of maintaining a negative draft of .05" w.c. at all times and conditions.

WARNING: If this setting is exceeded it could cause a solid fuel fire to burn out of control.

We recommend that the KERR SCOTTY SS Wood Furnace be connected to its own chimney. However, two or more fuel-fired appliances, other than fireplaces, wood stoves or incinerators, may be connected to the same chimney.

The National Standard of Canada, Installation Code for Solid-Fuel-Burning Appliances and Equipment, CSA-B365-01 clause 5.2.9 states that:

Two or more appliances shall not be connected to the same chimney flue unless:

a. The appliances are located on the same story;
b. A negative pressure is maintained at the flue collar of each appliance;
c. Each appliance is provided with a means to control the rate of flow of air or flue gases through the appliance combustion and heat exchanger chambers. Where limitations on flue pressure (draft) are contained in the manufacturer's instructions, such means shall be capable of maintaining at the flue collar, the pressure specified by the appliance manufacture; **NOTE**: For the purpose of this Clause, draft controls include ash pit air control dampers, dampers or draft slides wherever located, over-fire and flue pipe key dampers, and check draft controls located on or in the flue pipe.
d. The flue pipes of the appliances are connected to a manifold as close to the chimney as practicable or directly to the chimney in the following order:
   (i) If only solid fuel is used, the flue pipe from the smallest appliance shall be on top (downstream);
   (ii) If different fuels are used as permitted in Clause 5.2.7 CSA-B365-01, the oil flue pipe shall be on top (downstream); and the solid fuel flue pipe on the bottom (upstream); and
e. The chimney flue is capable of venting the flue gas by natural draft when all appliances not interlocked to prevent simultaneous firing are firing at their maximum rate at the same time.

When installing a wood-burning appliance to an existing chimney carefully inspect entire chimney for the presence of old inlet holes, which may be improperly covered by metal caps or other unacceptable means. Fill any openings with brick and mortar to ensure no hazardous openings exist.

2.5 Clearances (Fig S202-1)

The KERR SCOTTY SS Wood Furnace is to be installed in accordance with National Building Code or local regulations. Allowances front and rear must be made for cleaning and servicing.

NOTE: Regardless of minimum clearances to combustibles for safety reasons, a minimum clearance of 30 inches (765 mm) should be allowed at the furnace rear for cleaning (due to length of cleaning rake) and access to smoke pipe.

Minimum safety clearances to combustibles are:

Front	48”	1220 mm
One Side	6”	152 mm
Other Side (for rear access)	24”	610 mm
Rear (see Note above)	24”	610 mm
Flue Pipe to combustible, other furnace & electrical wiring	18”	457 mm
Wood Furnace Above Plenum and 6’(1.8 m) of duct	6”	152 mm
Supply Duct beyond 6’	2”	50 mm
Return Duct Plenum and 6’(1.8 m) of duct on solid fuel burning warm air furnaces	3”	76 mm

This clearance will also allow adequate combustion air to reach the furnace.

WARM AIR DUCT and PLENUM CLEARANCES

The following clearances must be observed and must meet all local building, electrical and fire codes. Follow the National Standard of Canada, Installation Code for Solid Fuel Burning Appliances and Equipment, CSA-B365-01; the National Board of Fire Underwriters and in the US the NFPA codes.

The KERR SCOTTY SS Wood Furnace warm air plenum and first 6ft (1.8 m) of warm air supply duct in any direction must be installed observing a minimum of 6 inches (152 mm) clearance from the joists or combustible materials. Beyond the first 6ft (1.8 m) of supply duct, a 2 inches (51 mm) minimum clearance must be maintained between the warm air supply ducts and all joists or combustible material (See Fig. S202-1).

Return air ducts, including main ducts and branch ducts, on solid fuel burning warm air furnaces shall be installed to provide at least 3 inches (76 mm) clearance to combustible construction for the first 6ft (1.8 m) away from the furnace plenum. **This requirement is not intended to apply to return air ducts serving an oil-fired, gas fired or electric furnace to which an add-on furnace is connected.**

It is recommended that a non-combustible rigid board be fastened on the underside of the floor joists in the area of the ceiling above the furnace, warm air ducts and smoke pipe.

2.6 Add-On to Another Furnace (Fig S202-5B, Fig S202-5C)

The KERR Wood Furnace may be installed very satisfactorily in conjunction with another furnace as tested by CSA under standard B365.

In this installation the wood furnace is connected downstream in series with a new or the existing electric or oil furnace. The blower from the existing furnace provides the air circulation. The SCOTTY SS may only be added in series downstream from an oil furnace having an input rating (on original nameplate) of between 0.75 and 0.90 gph (US) or SI equivalent.

For oil furnaces having multi-speed blowers with continuous circulation capability.
Add-on furnaces such as the Kerr Scotty SS can be installed with oil fired warm air furnaces such as the Kerr KD Gemini that have continuous blower circulation capability. A relay must be used if the furnace is to maintain the continuous circulation feature. The wiring diagram for this installation is Fig. S202 – 5B.

Disconnect Low Speed Circulation Fan Switch if Optional Relay is not used.
Fig. S202 – 5C.

Disconnecting the circulation fan low speed switch.
If the red wire from the circulation fan switch, in the furnace wiring box, were disconnected from the yellow wire leading to the blower compartment and both, red and yellow wires marretted off then there would be no need for the switching relay (Honeywell R4222D 1013 or equiv.).

In that case the two blue wires would marrette together at location “A” of “Add-On Wiring” diagram, and provide power to the blower on high speed (black wire). The two blue wires being 1.) Wood fan “ON” control and, 2.) Oil fan “ON” control.
Also 120 Volts can be fed back through any unused wire from the blower. All unused wires should be marretted off.

Low Speed Switching Relay (This is an optional part) Fig. S202 – 5B
The Honeywell (R4222D 1013 or equivalent.) relay is to prevent power from being fed to the blower motor on two motor windings at the same time.

1). The red wire from the circulation fan switch (Low Speed) on the oil furnace.
2) The blue heating wire from the wood fan limit control on high speed.

This relay will disconnect the circulation fan low speed switch and connect the high speed to the blower motor when there is a call for heat.

Items required:

1. Switching Relay R4222D 1013 (120 V Coil, 12 amp @ 120 Vac), or equivalent.
2. Junction box (4” x 4”) and cover.
3. Square extension box (4”x 4”gyproc extension).
4. Two plastic universal bushings or junction box connectors.
5. White wire (12”), two insulated spade connectors.
6. Black wire (6”), two insulated spade connectors.
7. Brown wire (12”), two insulated spade connectors.
8. Yellow wire (12”), two insulated spade connectors.
9. Two cabinet mounting screws.

INSTRUCTIONS

1. Turn off power to the oil furnace and wood furnace.

2. Mount the switching relay in a junction box, in the blower compartment near the blower motor and motor wires. (If possible mount relay on rubber or foam pad to reduce noise in ductwork).

3. Remove the white neutral wire from the blower motor, and connect it to a selected neutral side of the relay coil.

4. Connect the white wire (item 2) to the second spade of the selected neutral side of the relay coil, and the other end into the blower neutral wire location (where initial white wire was removed).

5. Remove the black high-speed wire from the blower motor (this should be the selected blower heating speed), and connect it to the power side of the relay coil (no relay spade #).

6. Connect the black wire (item 3) to the second spade of the selected power side of the relay coil, and the other end of the wire on to one side of the normally open contacts (relay spade #1).

7. Connect the brown wire (item 4) to the high-speed connection on the blower motor, and the other end of the wire on to the other side of the normally open contacts (relay spade #3).

8. Remove the yellow low-speed wire from the blower motor (this should be the selected low-speed in the furnace wiring box), and connect it to one side of the normally closed contacts (relay spade #4).

9. Connect the yellow wire (item 5) to the low-speed connection on the blower motor, and the other end of the wire on to the other side of the normally closed contacts (relay spade #5).

10. Turn on power to the oil furnace and wood furnace. Check relay operation.

2.7 DUCT CONNECTION (Fig S202-1, Fig S202-2)

See figure **S202-11** for **Approved Furnace Ductwork Configurations.**
See figure **S202-12** for **Prohibited Furnace Ductwork Configurations.**

Minimum cross-sectional area of ductwork from furnace should be approximately 160 square inches with equal or larger size for return air.

The furnace must not be installed as a gravity system as the controls are not designed for this type of operation.

The dimensions and locations of permissible openings in casings for ducts, blower, or emergency air are clearly identified on the furnace or on specific templates enclosed in the firebox.

Make or enlarge the openings in the wood furnace casing exactly as identified for add-on connection and on the appropriate side, trim the furnace insulation flush with cut opening. Fasten edges of insulation securely with metal straps or bend tabs of duct starting collar over insulation edge to hold it in place.

DO NOT use duct elbows having an inside radius of less than 6 in (152 mm). Use only 16 x 20 in. duct “S” type interconnection for this furnace. Make all duct connections for the “S” type interconnection (See Fig. S202-2).

CAUTION:

a) The DB-202A is certified for installations using a divider in the plenum of the oil furnace.
b) An ADD-ON unit must only be connected to a furnace, duct system and chimney, which are in good operating condition.
c) **DO NOT** relocate any of the safety controls in the original furnace installation.
d) Operate the oil-fired unit periodically to ensure that it will operate satisfactorily when needed.
e) **DO NOT** connect to duct work so that a reverse flow is possible.
f) Before attempting installation, determine if there is suitable space available in the furnace area for the furnace connection outlined herein.
g) The external static pressure in the warm air duct to the house of the original system must be measured prior to any changes to the system. These are to be reset to the same values after the add-on procedure to maintain airflow through the oil furnace.

An important requirement of this type of installation is that when installed in an existing system the main ducts may have to be lowered to assure proper and safe clearances from combustible material. (See Fig. S202-1 and S202-2).

After all connections are made a static pressure test and/or temperature measurement must be made in the outlet plenum of the wood furnace. This is a simple procedure and is outlined as follows using a Dwyer Model 25 or equal inclined manometer.

(a) Drill hole in wood outlet plenum
(b) Level inclined manometer and adjust to zero, insert manometer tube (Pressure end)
(c) With all duct work and doors in place static pressure should measure 0.2 in (50 Pa) with blower running.

Pressure may be corrected by the following measures:
(a) Change blower pulley size (usually decrease)
(b) Change blower motor pulley (usually increase)
(c) Increase return air duct area (if restricted)

CAUTION – Current draw by blower motor should be checked after making any pulley change. If motor now draws greater current than that shown on the nameplate a larger more powerful motor must be installed.
IMPORTANT – **DO NOT** change the blower.

As an alternative to the static pressure test method, the installer may make adjustments on the basis of temperature measurement. For this test the wood furnace must be at full operating temperature.

Take one temperature measurement in the front of the oil furnace plenum 12” to 16” up or approximately center. Take a second measurement in the wood furnace plenum (same position). Subtract one measurement from the other to arrive at a temperature difference (TD). The TD must be between 40º F and 100º F during normal operation, and ideally around 80º F. The same adjustment procedure for pulleys applies for correction when using this method.

CAUTION – Most thermometers have a large time lag in reaching accurate measuring levels. It is important that this interval be measured for your thermometer by immersing it in boiling water and observing the time required for it to reach correct reading.

IMPORTANT – This equipment shall be installed in accordance with the instructions of the manufacturer and in a manner acceptable to the regulatory authority by mechanics experienced in such services. When required by the regulatory authority, such mechanics shall be licensed to perform this service.

The installation shall comply with the applicable requirements of CSA standard B365, Installation Code for Solid Fuel Burning Appliances and Equipment, and if changes are made to the oil furnace this shall comply with CSA standard B139, Installation Code for Oil Burning Equipment.

2.8 Control System

The fan and limit control and the damper motor should be located as shown in Figure S202-2.

T822 – Room Thermostat – Wood Furnace
The primary control is the room thermostat located near the center of the house in the main floor or near an existing thermostat. The thermostat operates the damper motor to open and close the damper door thus allowing more or less air into the combustion area to control the fire.

M847 – Damper Motor
The damper door lever should be attached to the damper motor wheel with the chain included. Be sure the damper door is fully closed and the damper motor is not powered. Connect the chain to the damper door level and to the bottom hole in the damper motor wheel. As a final adjustment bend the top chain link slightly to vary the damper position.

L4064R – Wood Furnace/Limit Control
The fan and limit control mounted in the plenum controls the operation of the circulating blower and limits the air temperature to prevent the furnace from overheating.

Set Points

1. “ON” is usually set to 140?F (60°C). It turns on the circulating blower when the air temperature in the plenum reaches this temperature.

2. “OFF” is usually set to 100°F (38°C). It turns off the circulating blower when the circulating air temperature in the plenum drops to this temperature.

3. “Hi limit” is preset to 280°F (138°C). This will over ride the room thermostat to close fire damper door if the wood furnace overheats.

ALL ELECTRICAL WIRING MUST CONFIRM TO NATIONAL AND LOCAL CODES.

2.8.1 STATIC PRESSURE DROP TEST (Fig S202-4)

After all connections are made and the ADD-ON installation is complete check the static pressure in the outlet plenum of the wood furnace. This is done with an inclined manometer, similar to the Dwyer Model 25, capable of reading 0.2" w.c. to 0.50" of water column.

Procedure:

1 – Drill hole in wood outlet plenum as indicated, in fig. S202 - 4

2 – Level the inclined manometer, and adjust the zero.

3 - Insert the pressure tube in the hole in the wood outlet plenum.

4 - With all duct work and blower doors in place the static pressure at point "P" in the wood outlet plenum should measure 0.2" water column (50Pa) with the blower running.

If the pressure is less than 0.2" w.c. (50 Pa) or that recommended by the electric furnace manufacturer, it may be corrected by the following means:

1 – Change blower pulley size (usually decrease).

2 – Change blower motor pulley (usually increase).

3 – Increase return air duct (if restricted). If pressure is less than 0.2" w.c. (50Pa) It may be corrected by increasing the flow area in the return air duct.

4 – If it is a direct drive blower in an oil furnace, you may increase the blower speed.

PRESSURE CORRECTION – ELECTRIC FURNACE WITH DIRECT DRIVE BLOWER:

If pressure is less than 0.2" w.c. (50Pa) It may be corrected by increasing the flow area in the return air duct.

Nortron 21B15H – Series B and similar.

CAUTION: Do not change the wiring of the direct drive blower motor.

IMPORTANT – DO NOT CHANGE BLOWER.

CAUTION – Check the blower motor current draw after making any pulley change. If the blower motor now draws a larger current than that shown on the nameplate a larger more powerful motor must be installed.

2.8.2 TEMPERATURE RISE TEST

As an alternative to the static pressure test the installer may make adjustments on the basis of temperature measurements. For this test the wood furnace must be at full operating temperature.

Procedure:

1. Take one air temperature T1 through a small hole in the front of the electric outlet duct. Make sure you leave the thermometer in the air stream long enough for the reading to stabilize.

2. Take a second air temperature T2 through a small hole in the front of the WOOD furnace outlet plenum.

3. The temperature difference T2 – T1 is the air temperature rise and must be within the range 40-100°F during normal operation. Ideally it should be 80°F.

4. Use the same adjustments as in 2.8.1 above to correct a temperature rise above 100°F or below 40°F.

CAUTION – Most thermometers take several minutes to reach their true reading. With the thermometer in the same position in the hot air stream take two successive readings 10 minutes apart – if they are the same the temperature reading may be taken as stabilized.

To check your thermometer accuracy immerse it in boiling water – it should read 212°F.

2.9 Additional Notes

- **DO NOT** relocate any of the safety controls in the original oil furnace installation

- **DO NOT** relocate any of the safety controls in the electric furnace installation.

- Operate the oil-fired unit or electric furnace periodically to ensure that it will operate satisfactory when needed.

- **DO NOT** connect ductwork so that reverse flow is possible.

- Before attempting installation, determine if there is space available in the furnace area for the proposed ADD-ON.

- The external static pressure in the warm air duct to the house in the original system must be measured prior to any changes in the system. The static pressure is to be reset to the same value after the ADD-ON is installed to maintain the airflow through the oil/electric furnace.

- An ADD-ON unit must only be connected to an oil furnace, duct system and chimney, which are in good operating condition.

- **DO NOT** interconnect an add-on with duct elbow less than 6" (152 mm) inside radius.

- **CAUTION:** MAINTAIN COMBUSTION AIR TO FURNACES – AIR STARVATION IS DANGEROUS.

2.10 Installers Final Checklist

DUCTWORK INSPECTION
1. Furnace ducted properly?
2. Proper duct clearances maintained?

FURNACE INSPECTION
1. **DO NOT** use firebrick in the furnace
2. Check settings on fan limit controls.

WIRING INSPECTION
1. Is main disconnecting switch within view?
2. Wiring cables protected from heat and not touching hot surfaces?

FLUE AND SMOKE PIPE INSPECTION
1. Flue inner size equivalent to 7" round or larger?
2. Separate entry and lower to flue for both solid-fuel and oil or gas smoke pipes?
3. Smoke pipe 24 gauge or better?
4. Smoke pipe secured by screws?
5. Draft regulator (if used) set at .05" w.c. maximum?
6. Clearances of smoke pipe 18" or better from combustible material? Metal protection is recommended.

DEALER TO INSTRUCT HOMEOWNER
1. Keep area around unit clean.
2. Use DRY wood only. Hardwood is preferred.
3. Load carefully.
4. Load level no higher than center of door.
5. Remove ash regularly as directed.
6. Look for soot build up in smoke pipe.
7. Danger of flue fire if poor fuel or poor maintenance produces creosote buildup.
8. Operation of unit during power failure. (i.e. manual operation.)
9. When shutting down for extended periods, clean unit thoroughly.

SECTION 3
ADD ON TO OIL FURNACE

SECTION 3 - ADD ON TO OIL FURNACE

3.0 ADD ON TO OIL FURNACE (Fig S202-1)

Scotty SS DB-202A may be connected downstream of a new or existing oil furnace. The blower from the existing oil furnace provides the air circulation. The Scotty SS DB-202A may only be connected downstream from an oil furnace having an input rating (on original name plate) of between 0.75 and 0.90 USGPH, or at least 1000 cfm.

For details and required duct clearances see Fig. S202-1. The minimum cross-sectional area of supply ductwork from the wood furnace should be 100 Square inches. The return air duct area should be equal or larger.

As the controls are not suitable, the Scotty SS DB-202A must **NOT** be installed for normal operation as a GRAVITY system.

IMPORTANT – This equipment should be installed in accordance with the manufacturer's instructions in a manner acceptable to the regulatory authorities and by technicians experienced in such work. When required by the regulatory authority, such technicians should be licensed to perform this service.

The installation shall comply with CSA standard B365, Installation Code for Solid Fuel Burning Appliances and Equipment.
Changes made to the oil furnace installation shall comply with CSA standard B139, Installation Code for Oil Burning Equipment.

3.1 COMBUSTION AIR SUPPLY FOR WOOD AND OIL BURNING APPLIANCES

It is important to provide adequate combustion air to the furnace. It may be necessary to add a ventilator to an exterior wall of a closed furnace room or an airtight basement.

Air inlets of at least 100 square inches free area (1.5 in^2/1000Btu) must be provided to the room occupied by the wood fired or oil fired furnace. These fresh air inlets must provide or allow free access of fresh outside air to the furnace. At no time or under any circumstances should a wood or oil-burning appliance be starved of combustion air.

The appliance must at all times be able to maintain the approved stack draft. The barometric draft regulator must be installed on the furnace smoke pipe in the same room or at least in such a way that there is unrestricted free passage of air between the combustion air inlet to the furnace or burner and the barometric draft regulator.

Operating a wood or oil fired appliance with inadequate combustion air could be hazardous.

3.2 Duct Connection – (Fig S202-2, Fig S202-4)

See template packed in Scotty SS firebox for the dimensions and locations of permissible openings in the wood furnace casings for ducts, blower or emergency air.

Make or enlarge the opening in the wood furnace casing exactly as identified for ADD-ON connection and on the appropriate side, trim the wood furnace insulation flush with cut opening. Fasten edges of insulation securely with metal straps or bend tabs of duct starting collar over insulation to hold it in place.

Make all duct connections for the "S" type interconnection – See. Fig. S202-2 and S202-4.

IMPORTANT – If necessary move main ducts to meet safe clearance requirements of ADD-ON wood furnace. See Fig. S202-1.

3.2.1 S-Type Duct Connection (Fig S202-2)

Use only 10" x 20" "S" type duct interconnection. Duct elbows must be increasing from 10" x 20" to 12" x 20" clinch collar type.

DO NOT use duct elbows having an inside radius less than 6".

3.2.2 Divided Plenum (Fig S202-4)

The Kerr Scotty SS DB-202A is also certified for installation using a divider in the plenum of the oil furnace.

CAUTION: When a plenum divider (split plenum) is used in the oil furnace warm air plenum, all fan limit controls in the oil furnace plenum must be located 5" (127 mm) BELOW the divider. Limit controls for either the wood furnace or the oil furnace shall not be within 5" (127 mm) of any inlet or outlet duct or plenum divider when the controls are mounted as specified.

3.3 CONTROL SYSTEM

3.3.1 ADD-ON TO OIL CONTROL KIT "A" (Fig S202-2, Fig S202-5)

Control kit "A" is required for ADD-ON to Oil installation of the KERR SCOTTY SS Wood furnace model DB-202A.

ADD-ON to Oil – wiring diagram see Fig. S202-5 – layout diagram See Fig. S202-2

Kit "A" consists of the following:

1. L4064R1027 11" Primary Fan Limit Control (Wood Furnace) with mounting standoff. Fan "ON" – 140° F, Hi Limit – 280° F. – See description below.

2. One stand off bracket for fan limit.

3. M847A1031 Draft Damper Motor complete with chain and S hook. Lifts damper in response to wood thermostat's call for heat. Be sure that damper gate is fully closed when damper motor is not powered. Connect chain to first or second hole up in wheel. Leave bottom chain link open for emergency disconnect – see description below.

4. T822D1826 thermostat. In oil ADD-ON installations, mount adjacent to oil thermostat and label "wood" – Heat anticipator setting, 0.32 amps – See description below.

5. Switching Relay (White Rodgers 8A05A-4) or equivalent.
   Prevents wood furnace and oil furnace from firing at the same time. Damper Control mounting plate c/w decal.

6. One 48" wood to oil wiring harness.

7. One stand off cable bracket (175 mm x 30 mm).

8. 8 ½" x #8 sheet metal screws.

9. Wiring harness c/w 4" x 4" box, one flex conduit, wire nuts, antishorts and squeeze connectors.

10. 3 – 1-1/2 x #10 sheet metal screws for fastening fan control to mounting bracket.

IMPORTANT – follow carefully the electrical schematic (decal on wood furnace cabinet or Fig. S202-5). Both wood and oil furnaces must be supplied by the same single electrical branch circuit. A ground wire is necessary between the wood and oil furnaces.

L4064R – Wood Furnace Fan/Limit Control – Fig. S202-2, 202-5

The L4064R fan and limit control is mounted in the plenum over the wood fired furnace. It controls the operation of the oil furnace blower and shuts down the fire damper if the circulating air temperature rises above a fixed upper limit. See Fig. S202-2 for location.

Adjustable Set Points

1. "ON" is usually set to 140?F (60°C). It turns on the circulating blower when the circulating air temperature reaches this temperature.

2. "OFF" is usually set to 100°F (38°C). It turns off the circulating blower when the circulating air temperature drops to this temperature.

3. "Hi limit" is preset to 280°F (138°C). Will over ride room thermostat to both close fire damper door and prevent oil furnace from starting if furnace overheats.

M847 – Damper Motor, See Fig. S202-2, S202-5
The damper motor should be located as shown in Fig. S202-2. The damper door lever should be attached to the damper motor wheel with the included chain. Be sure that the damper door is fully closed when the damper motor is "off" or not powered. Connect the chain to the damper door lever and to the bottom hole in the damper motor wheel. As a final adjustment bend the top chain link slightly to vary the damper position.

T822 – Room Thermostat – Wood Furnace – Fig. S202-5
This is located at or near the center of the house on the main floor or near an existing thermostat. The thermostat operates the damper motor control to open and close the damper door thus allowing more or less air into the wood furnace combustion area to control the fire.

ALL ELECTRICAL WIRING MUST CONFORM TO NATIONAL AND LOCAL CODES.

SECTION 4
ADD ON TO ELECTRIC FURNACE

SECTION 4 – ADD ON TO ELECTRIC FURNACE

4.1.1 NORTRON 21B15H – Series B Electric Furnaces (Fig S202-6)

The Scotty SS is specifically approved as an ADD ON to the Nortron 21B15H – Series B Electric Furnaces. This manual shows the approved method of installation and the required elbow duct for furnace interconnection can be obtained from Kerr Controls Ltd.

The Nortron FK120 – 120 VOLT KIT is not used to provide power to the wood furnace. This kit provides 120-volt power **ONLY** when the electric furnace blower motor is operating.

We recommend the Nortron 21B15H – Series B furnace be mounted in the down flow or counterflow position using the Kerr installation shown in diagram S202-6.

For Nortron 21B15H – Series B type electric furnace use support frame (Kerr Part No. A12240) according to the instructions provided with the support kit (side panel kit Kerr Part No. A12241 is optional).

Use the clinch collar type duct elbow 17” x 17” (432 x 432 mm) increasing to 12” x 20” (305 x 508 mm) with an inside radius greater than 6” (152 mm). (Kerr Part No. A12117)

DO NOT use duct elbows with inside radius less that 6” (152 mm).

4.1.2 OTHER APPROVED ELECTRIC FURNACES (Fig S202-6)

The Scotty SS is also approved for other electric furnace 10 –25 kW output as long as:

1. The electric furnace is approved to CSA C22.2 No. 23, Electric Central Warm Air Furnaces.

2. The electric furnace’s internal air blower is at least that used in the 20kW version of the furnace.
   With other electric furnaces, approved to CSA C22.2 No. 23 use vertical duct elbows with the following specifications: See Figs. 1, 2 and 3 on page 33 and S202-6 for layouts.

3. Outlet to Scotty SS – 12” x 20” (305 mm x 508 mm) – to suit template opening in Scotty Wall.

4. Duct inlet to suit outlet of approved electric furnace.

5. Minimum inside radius of vertical duct elbow – 6”, (152 mm).

THE SCOTTY SS WOOD FURNACE MAY BE ADDED TO AN ELECTRIC FURNACE HAVING A RATING SHOWN ON THE ORIGINAL NAMEPLATE BETWEEN 10KW (34,000BTU/HR) MINIMUM AND 25KW (85,000 BTU/HR) MAXIMUM PROVIDED

THAT THE BLOWER IN THE ELECTRIC FURNACE IS AT LEAST THAT USED IN 20 KW FURNACE.

IMPORTANT – approved configuration for Scotty SS DB 202A Add-On to electric furnaces shown in section 4.2.1 of manual.

4.2 DUCT CONNECTIONS TO ELECTRIC FURNACE (Fig S202-6)

Scotty SS DB-202A may be connected downstream of a new or existing electric furnace. The blower from the existing furnace provides the air circulation. The Scotty SS DB-202A may only be connected downstream from an electric furnace having a rating (on original name plate) of between 10 and 25 kW.

For details and required duct clearances see Fig. S202-6. The minimum cross-sectional area of ductwork from the wood furnace should be 100 square inches and equal or larger area for the return air.

As the controls are not suitable, the Scotty SS DB-202A must **NOT** be installed for normal operation as a GRAVITY system.

WE RECOMMEND THE NORTRON ELECTRIC FURNACE BE MOUNTED DOWN OR COUNTER FLOW WITH KERR KIT A12240 SHOWN IN Fig. S202-6.

THIS EQUIPMENT MAY ONLY BE INSTALLED AND TESTED BY QUALIFIED PERSONNEL

Installation shall comply with – CSA standard B365, Installation Code for Solid Fuel Burning Appliances and Equipment, Changes made to electric furnaces shall comply with – CSA standard C22.2 No. 23, Electric Central Warm Air Furnaces.

4.2.1 DUCT CONNECTIONS (Fig S202-6, Fig S202-7)

The dimensions and locations of permissible openings in casings for ducts, blower and emergency air are clearly identified on the wood furnace or on specific templates enclosed in the firebox.

Make or enlarge the opening in the wood furnace casing exactly as identified for ADD-ON connection and on the appropriate side, trim the wood furnace insulation flush with cut opening. Fasten edges of insulation securely with metal straps or bend tabs of duct starting collar over insulation to hold it in place.

Make all duct connections for the “L” type interconnection – See Fig. S202-6, S202-7

IMPORTANT – main supply and return ducts must meet minimum clearance to combustibles requirements for ADD-ON wood furnace. – See Fig. S202-6.

4.2.2 MINIMUM DUCT SIZES

Main Supply: 8” x 16” minimum Main Return: 8” x 20” minimum

4.2.3 L-TYPE DUCT CONNECTION AND FRAME (Fig S202-6)

Cut the side opening in Scotty SS DB-202A wood furnace size 12” x 20” (305 x 508 mm) according to template provided.

4.3 INSTALLATION SUMMARY (Fig S202-6, Fig S202-7, Fig S202-8)

1. Install Scotty SS and Electric furnace as shown in Fig. S202-6 and S202-7.
2. Wire as shown in Fig. S202-8
3. Check pressure drop across Scotty SS as 0.2”wc (50Pa) as described in Section 2.7.1

4.4 CONTROL SYSTEM (Fig S202-8, Fig S202-9)

Electrical Schematic for ADD ON to Nortron FRK type electric furnace control system – See S202-8.

Electrical Schematic for ADD ON to other type electric furnace control system – See S202-9.

CAUTION: DISCONNECT ELECTRICAL POWER FROM BOTH ELECTRIC FURNACE AND ADD-ON FURNACE BEFORE SERVICING.

4.5 ADD-ON TO ELECTRIC CONTROL KIT "E" (Fig S202-8, Fig S202-9)

Control kit "E" is required for ADD-ON to Electric installation of the KERR SCOTTY SS Wood Furnace model DB-202A.

Kit "E" consists of the following:

1. L4064R1027 11" Primary Fan Limit Control (Wood Furnace) complete with standoff bracket. Fan "ON" – 140° F, Hi Limit – 280° F. Check JUMPER REMOVED. See "Note" below.

2. M847A1031 Draft Damper Motor complete with chain and S hook. Lifts damper in response to wood thermostat's call for heat. Be sure that damper gate is fully closed when damper motor is not powered. Connect chain to first or second hole up in wheel. Leave bottom chain link open for emergency disconnect – see description below.

3. T822D1826 thermostat. In ADD-ON installations, mount adjacent to electric furnace thermostat and label "wood"
   Note: anticipator setting 0.32 amps. See description below.

4. White-Rodgers 8A05A-4 Switching Relay. Prevents wood furnace and electric furnace from firing at the same time.

5. Damper Control stand off mounting plate c/w decal.

6. Cable stand off brackets and cable clips

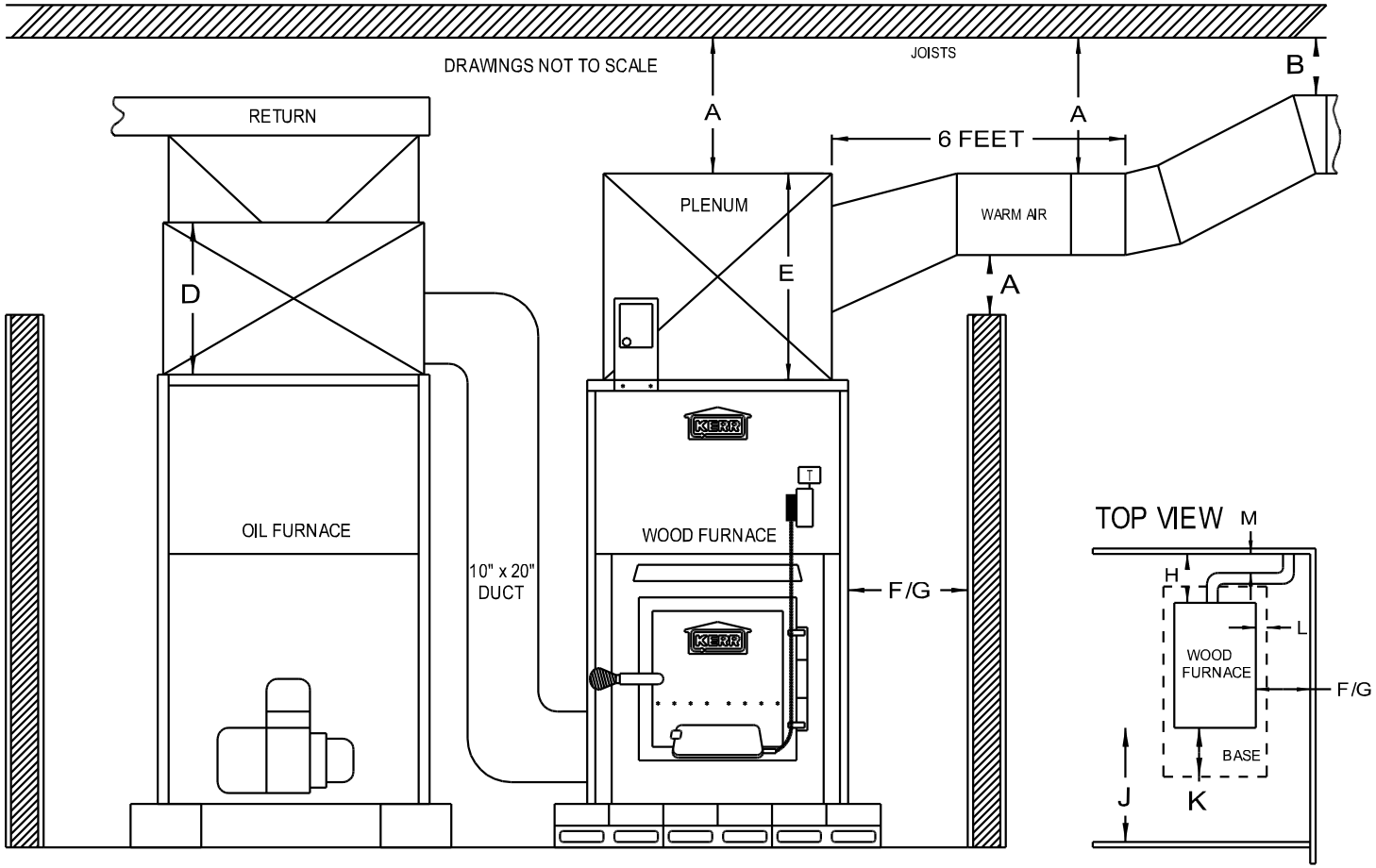
7. 12 – ½" x #8 sheet metal screws

8. Wiring Harness c/w 4 x 4 box, 2 flex conduit, wirenuts, antishorts and squeeze connectors

9. 3 – 1-1/2" x #10 sheet metal screws for fastening fan control to mounting bracket

IMPORTANT – follow carefully the electrical schematic (decal on wood furnace cabinet or Fig, S202-8 or 9). The electric power for the wood furnace must be supplied from the fused single branch circuit inside the electric furnace cabinet. A ground wire is necessary between the wood and oil furnaces.

NOTE – Remove Fan Limit Control jumper connection indicated in Figure S202-8.

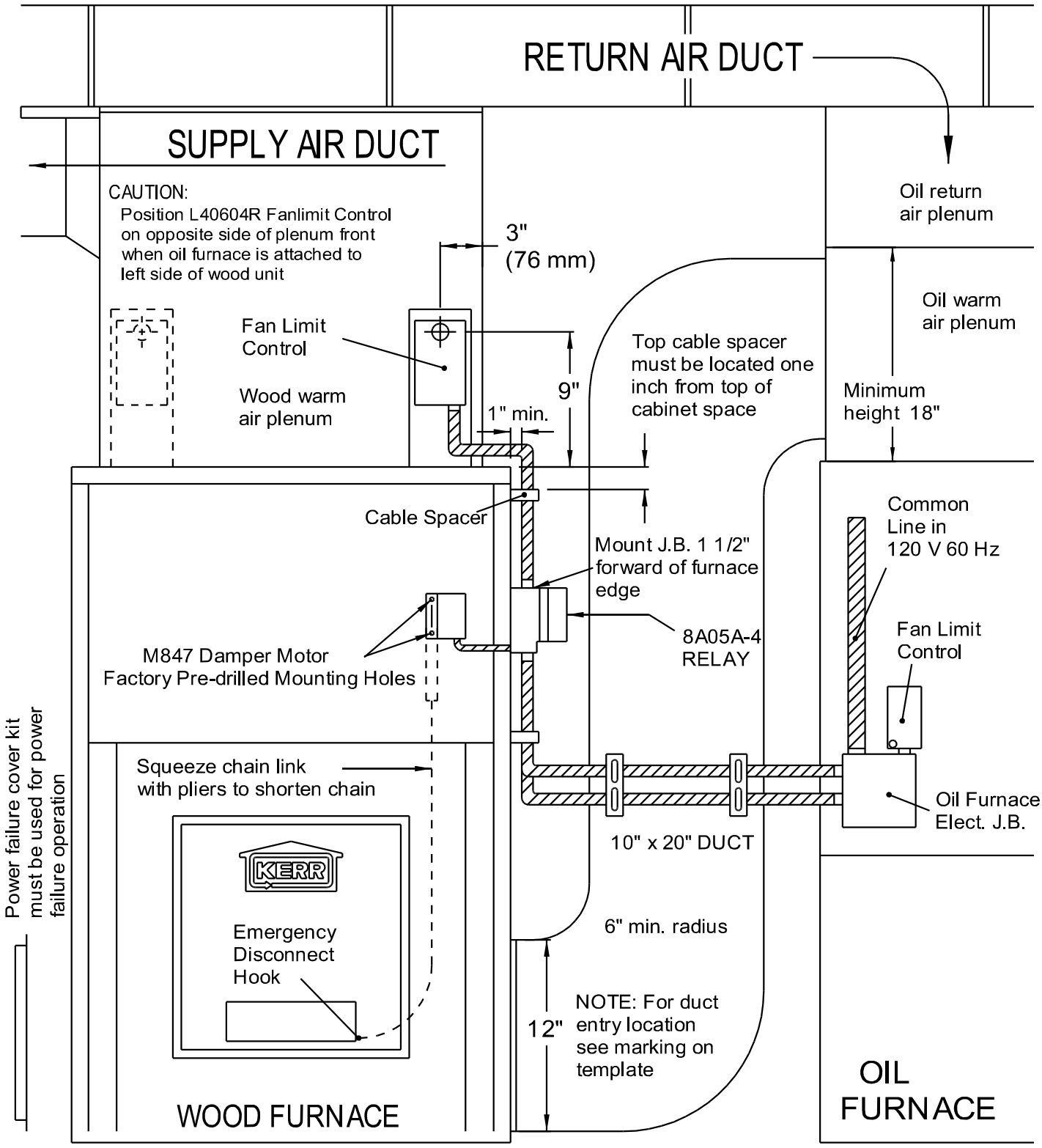


A - 6 in. (152mm) Supply plenum and all supply ducts within 6ft. (1.8m) of supply plenum.
B - 2 in. (51mm) All sides of warm air supply 6ft. (1.8m) remote from plenum.
C - 3 in. (76mm) All sides of wood furnace return air plenum and return air duct within 6ft. (1.8m) of plenum.
D - 18 in. (457mm) Minimum warm air supply plenum height of the oil furnace.
E - 18 in. (457mm) Minumim warm air supply plenum height of the wood furnace.
F - 6 in. (152mm) One side of furnace.
G - 24 in. (610mm) Other side of furnace for access to rear.
H - 24 in. (610mm) Rear clearance to combustibles. A rear clearance of 30 in. should be maintained for cleaning.
J - 48in. (1220mm) front clearance.
K - 18 in. (457mm) Door Side Floor Protecting pad (if not on concrete floor or concrete pad on ground).
L - 8 in. (204mm) Floor Protecting pad (if not on concrete floor or concrete pad on ground).
M - 18 in. (457mm) Flue pipe to combustibles and Electricl Services.

CLEARANCES - ADD ON TO OIL FURNACE

FIG. S202-1

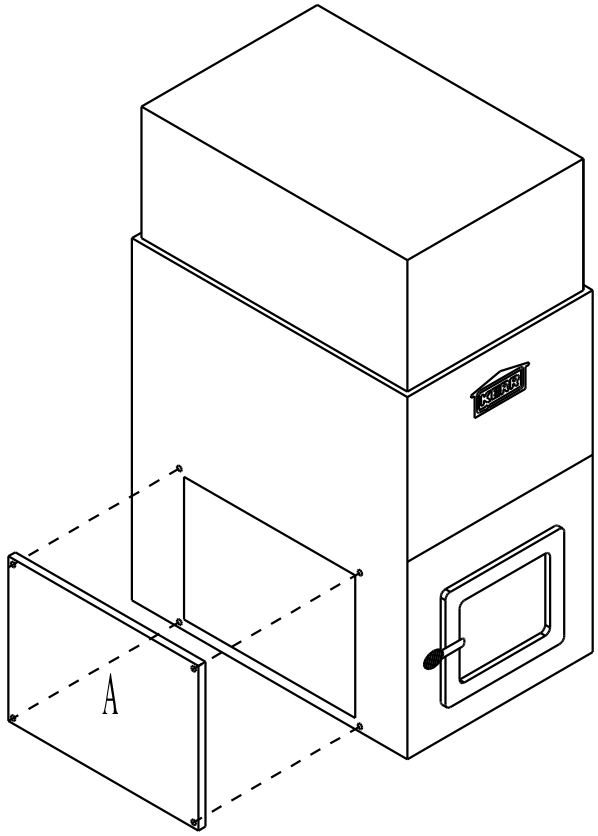
20210003


RETURN AIR DUCT
SUPPLY AIR DUCT
CAUTION:
Position L40604R Fanlimit Control on opposite side of plenum front when oil furnace is attached to left side of wood unit
3"
(76 mm)
Oil return air plenum
Oil warm air plenum
Minimum height 18"
Fan Limit Control
Wood warm air plenum
9"
1" min.
Top cable spacer must be located one inch from top of cabinet space
Cable Spacer
Mount J.B. 1 1/2" forward of furnace edge
Common Line in 120 V 60 Hz
8A05A-4 RELAY
Fan Limit Control
M847 Damper Motor
Factory Pre-drilled Mounting Holes
Power failure cover kit must be used for power failure operation
Squeeze chain link with pliers to shorten chain
Oil Furnace Elect. J.B.
10" x 20" DUCT
KERR
Emergency Disconnect Hook
6" min. radius
12"
NOTE: For duct entry location see marking on template
WOOD FURNACE
OIL FURNACE

SCOTTY SS WOOD OIL ADD-ON "S" TYPE DUCT

FIG.S202-2

202M0004



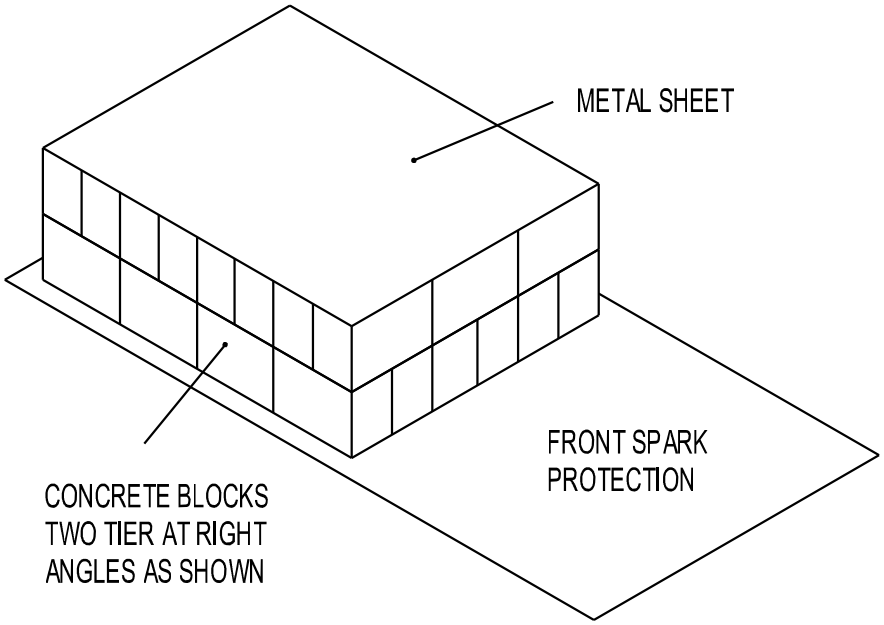
GRAVITY RETURN AIR ASSEMBLY KIT no. A06220

FOR POWER OFF (gravity) OPERATION KIT no. A06220 MUST BE INSTALLED ON FURNACE CABINET OPPOSITE TO "S" DUCT CONNECTION.

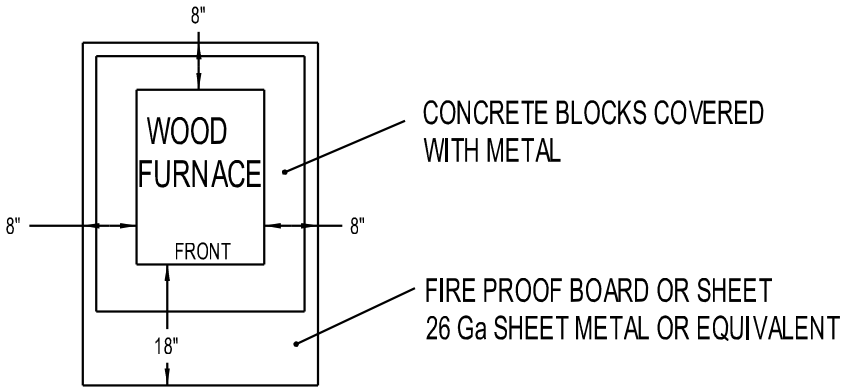
LOCATE AND CUT HOLE IN CABINET USING TEMPLATE PROVIDED.

REMOVE INSULATED COVER "A" ABOVE BEFORE ANY GRAVITY OPERATION (Power Failure)

KERR WOOD FURNACE "Gravity Return Air Kit"
FIG. S202-3A



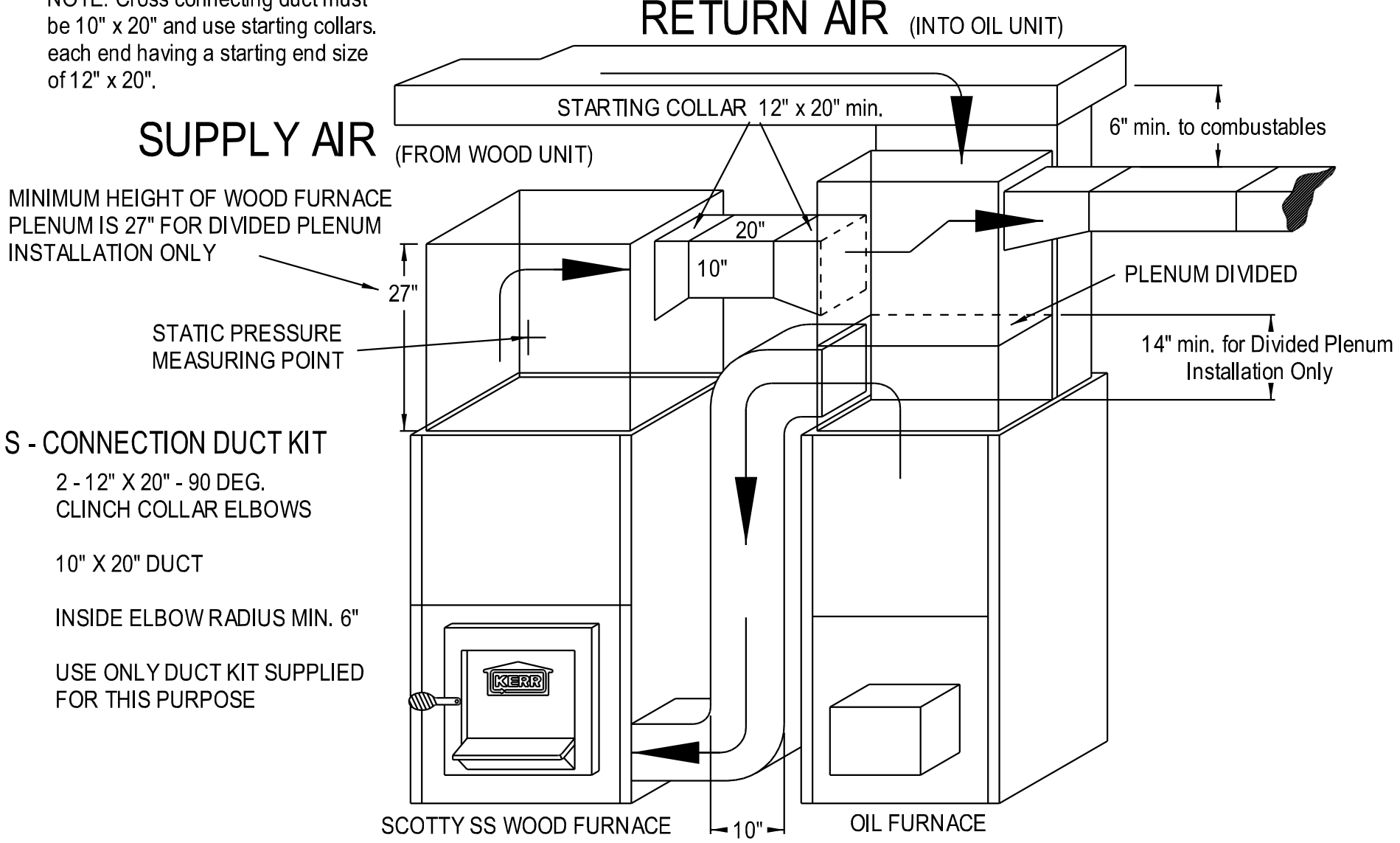
TOP VIEW



BASE FOR USE ON COMBUSTIBLE FLOOR
FIG. S202-3B

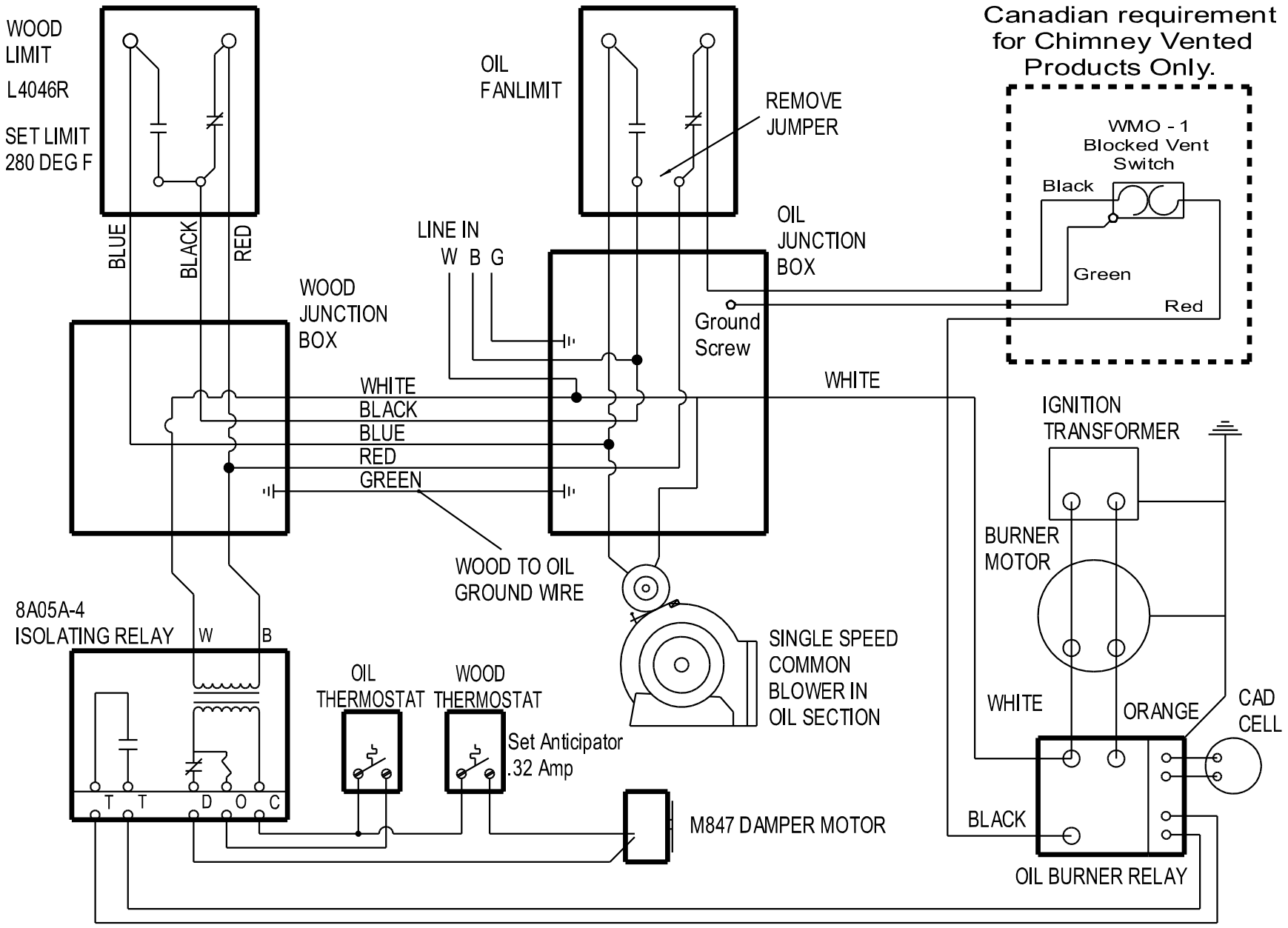
202M0005

NOTE: Cross connecting duct must be 10" x 20" and use starting collars. each end having a starting end size of 12" x 20".


RETURN AIR (INTO OIL UNIT)
STARTING COLLAR 12" x 20" min.
6" min. to combustables
SUPPLY AIR
(FROM WOOD UNIT)
MINIMUM HEIGHT OF WOOD FURNACE PLENUM IS 27" FOR DIVIDED PLENUM INSTALLATION ONLY
20"
10"
27"
PLENUM DIVIDED
STATIC PRESSURE MEASURING POINT
14" min. for Divided Plenum Installation Only
S - CONNECTION DUCT KIT
2 - 12" X 20" - 90 DEG. CLINCH COLLAR ELBOWS
10" X 20" DUCT
INSIDE ELBOW RADIUS MIN. 6"
USE ONLY DUCT KIT SUPPLIED FOR THIS PURPOSE
KERR
SCOTTY SS WOOD FURNACE
10"
OIL FURNACE

SCOTTY SS ADD ON TO OIL QUICK CONNECTION KIT "S" TYPE WITH DIVIDED PLENUM FIG. S202-4

202M0006



NOTE: OIL THERMOSTAT SHOULD BE SET LOWER THAN WOOD THERMOSTAT

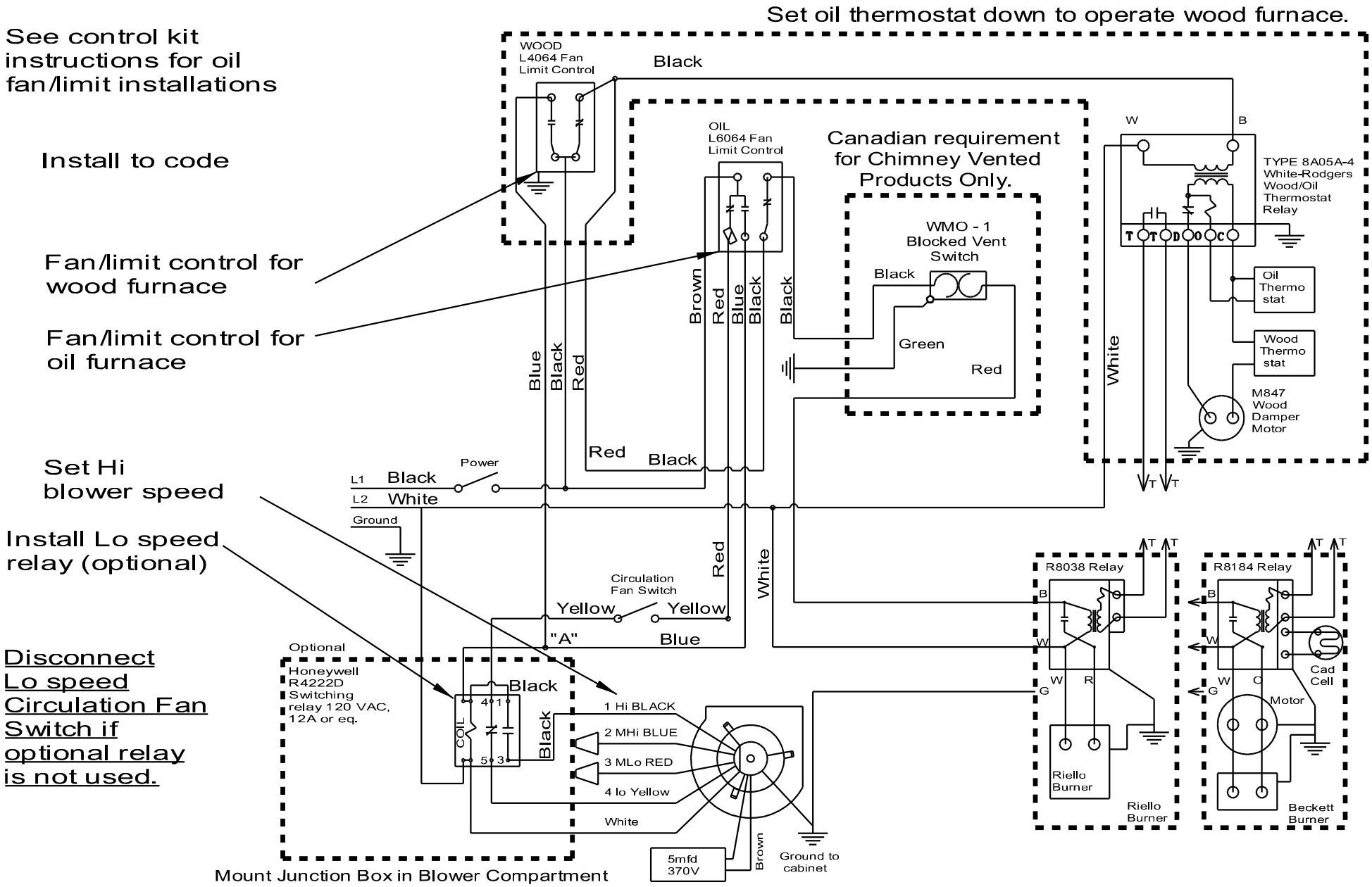
SCOTTY SS ADD-ON TO OIL WIRING SCHEMATIC BELT DRIVE MOTOR FIG. S202-5A

202M0007

Oil Fired Furnace Wood Add-On Wiring Diagram
FIG. S202-5B

Oil Furnace with Multi-speed blower motor and optional relay for Low Speed Air Circulation.

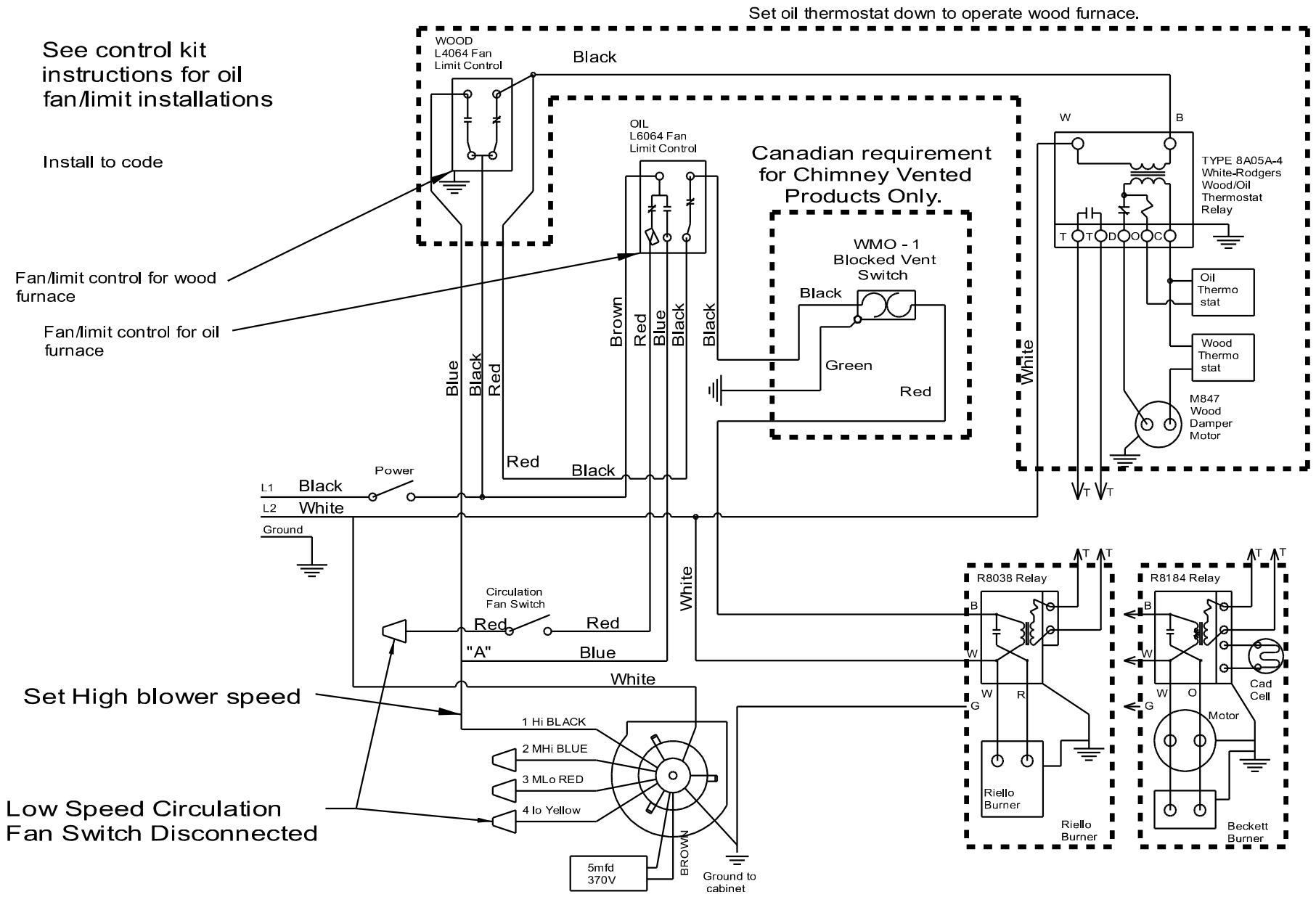
202M0013

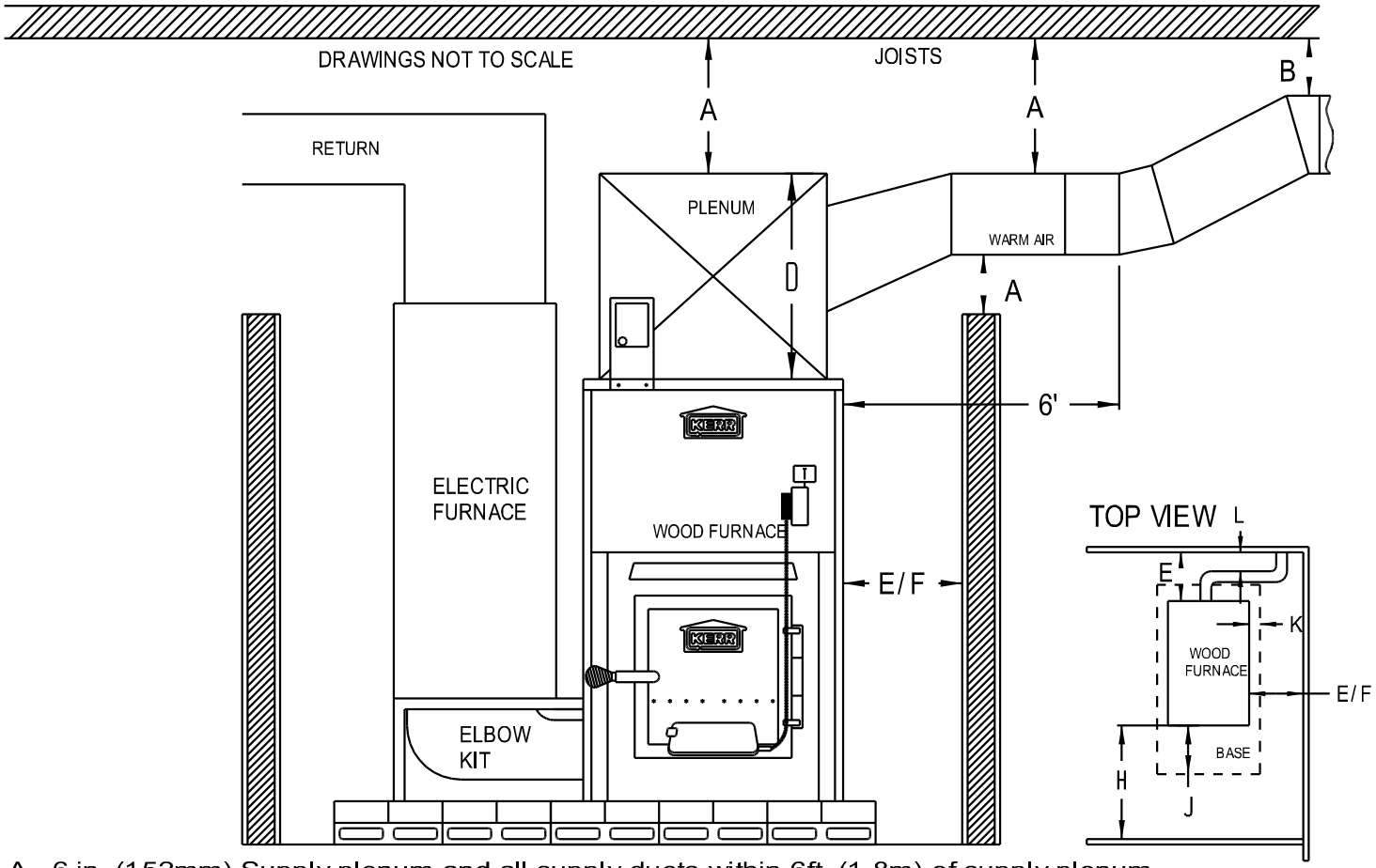


Oil Fired Furnace Wood Add-On Wiring Diagram
FIG. S202-5C

Oil Furnace with Multi-speed Direct Drive Blower Motor
Low Speed Circulation Fan Switch Disconnected.

101M0012

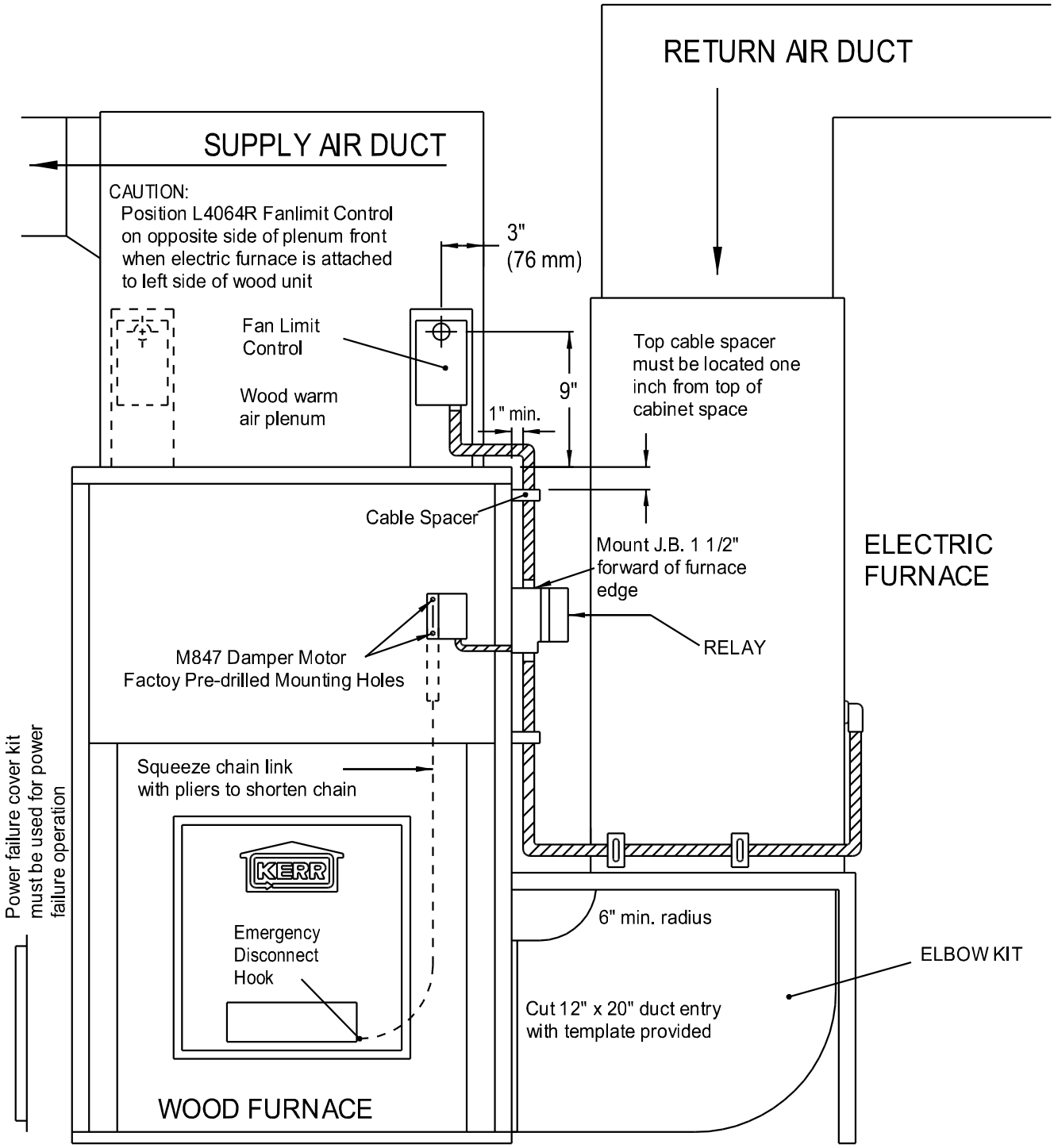




A - 6 in. (152mm) Supply plenum and all supply ducts within 6ft. (1.8m) of supply plenum.
B - 2 in. (51mm) All sides of warm air supply 6ft. (1.8m) remote from plenum.
C - 3 in. (76mm) All sides of wood furnace return air plenum and return air duct within 6ft. (1.8m) of plenum.
D - 18 in. (457mm) Minimum warm air supply plenum height.
E - 6 in. (152mm) One side of furnace.
F - 24 in. (610mm) Other side of furnace for access to rear.
G - 24 in. (610mm) Rear clearance to combustibles. A rear clearance of 30 in. should be maintained for cleaning
H - 48in. (1220mm) front clearance.
J - 18 in. (457mm) Door Side Floor Protecting pad (if not on concrete floor or concrete pad on ground).
K - 8 in. (204mm) Floor Protecting pad (if not on concrete floor or concrete pad on ground).
L - 18 in. (457mm) Flue pipe to combustibles and Electricl Services.

CLEARANCES - ADD ON TO ELECTRIC FURNACE
FIG. S202-6

202M0008



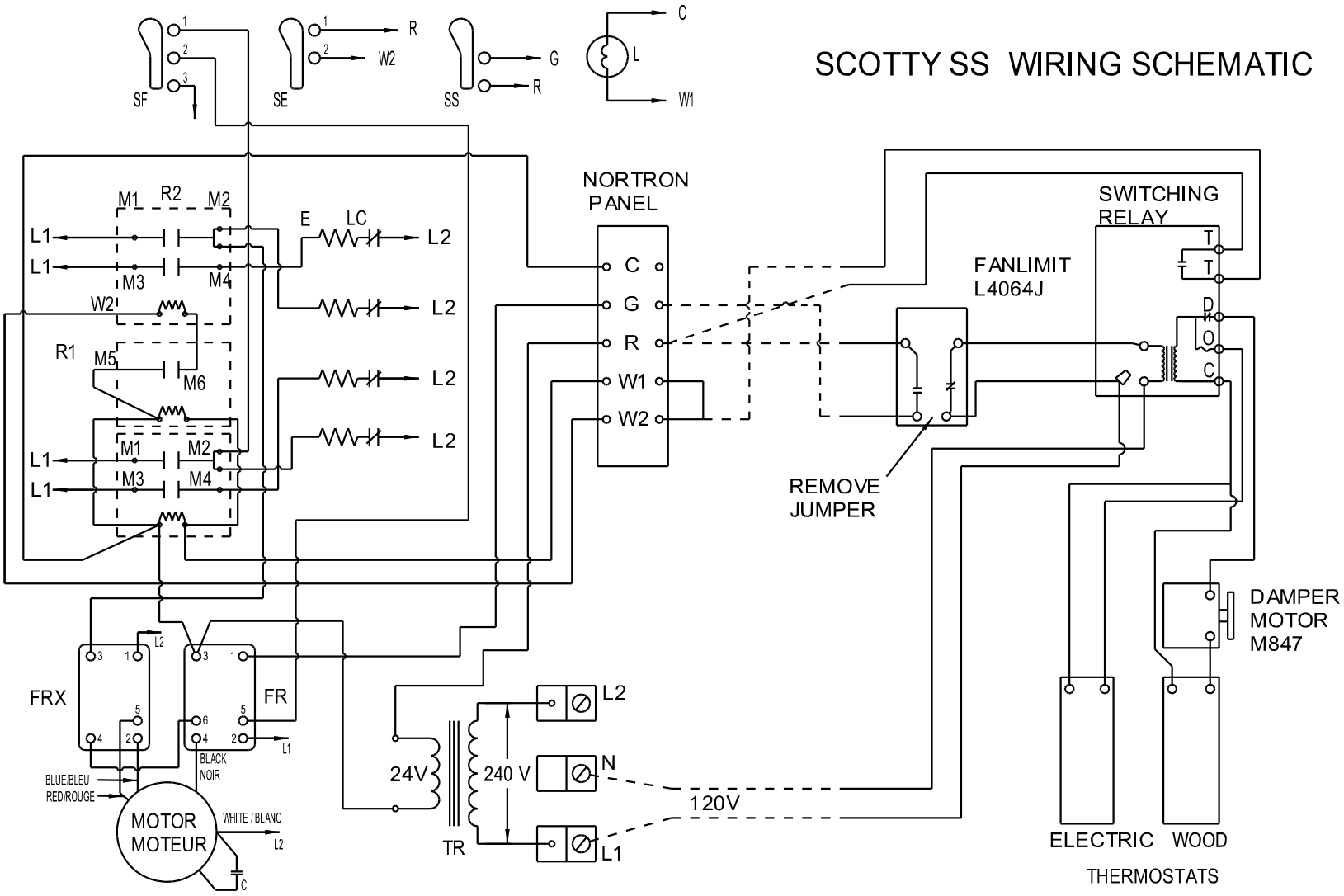
SCOTTY SS DB202A WOOD - ELECTRIC ADD-ON INSTALLATION DIAGRAM FIG. S202-7

202M0009

NORTRON ELECTRIC FURNACE
MODEL FRK-20 (4 ELEMENT) SHOWN

CAUTION: THIS EQUIPMENT MAY ONLY BE INSTALLED AND TESTED BY QUALIFIED PERSONNEL

SCOTTY SS WIRING SCHEMATIC



240 VOLTS AC SINGLE PHASE

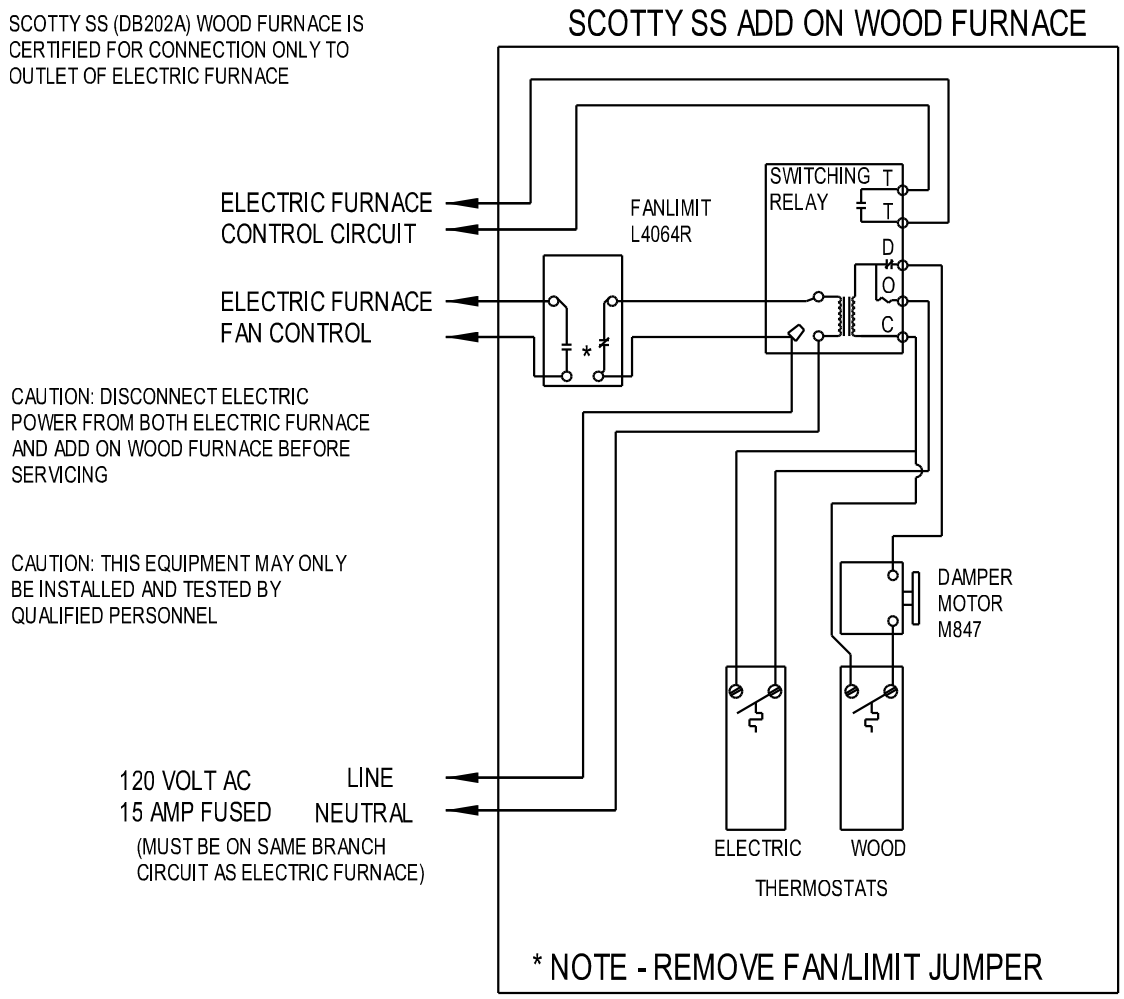
* NOTE - REMOVE FAN/LIMIT JUMPER

SCOTTY SS DB202A WOOD - ELECTRIC ADD ON ELECTRICAL SCHEMATIC
S202 - 8
NORTRON FRK10H - 30 SERIES FURNACE

202M0010

OTHER ELECTRIC FURNACE
APPROVED TO CSA C22.2 NO.23 - 1980
ELECTRIC CENTRAL WARM AIR FURNACES

SCOTTY SS (DB202A) MAY BE ADDED ONTO AN ELECTRIC FURNACE HAVING A RATING AS SHOWN ON THE ORIGINAL NAMEPLATE BETWEEN 10 KW AND 25 KW PROVIDED THAT THE BLOWER IN THE ELECTRIC FURNACE IS THAT USED IN THE 20 KW VERSION OF THE ELECTRIC FURNACE

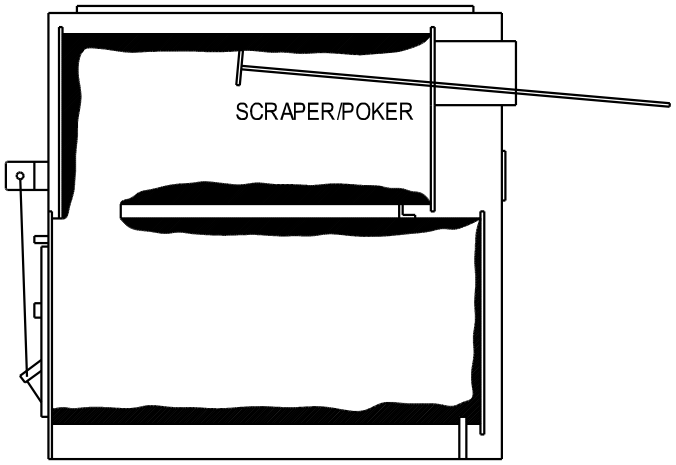

SCOTTY SS ADD ON WOOD FURNACE
SCOTTY SS (DB202A) WOOD FURNACE IS CERTIFIED FOR CONNECTION ONLY TO OUTLET OF ELECTRIC FURNACE
ELECTRIC FURNACE CONTROL CIRCUIT
ELECTRIC FURNACE FAN CONTROL
FANLIMIT L4064R
SWITCHING RELAY
T
T
D
O
C
*
CAUTION: DISCONNECT ELECTRIC POWER FROM BOTH ELECTRIC FURNACE AND ADD ON WOOD FURNACE BEFORE SERVICING
CAUTION: THIS EQUIPMENT MAY ONLY BE INSTALLED AND TESTED BY QUALIFIED PERSONNEL
DAMPER MOTOR M847
120 VOLT AC 15 AMP FUSED
LINE
NEUTRAL
(MUST BE ON SAME BRANCH CIRCUIT AS ELECTRIC FURNACE)
ELECTRIC
WOOD
THERMOSTATS
* NOTE - REMOVE FAN/LIMIT JUMPER

NOTE: SET ELECTRIC THERMOSTAT LOWER THAN WOOD THERMOSTAT

ALL ELECTRICAL WIRING MUST CONFORM TO NATIONAL AND LOCAL CODES WIRING TO FAN/LIMIT CONTROL SHOULD BE 105 DEG. C TEW MOUNT WIRING ON STANDOFF BRACKETS PROVIDED IN KIT "E"

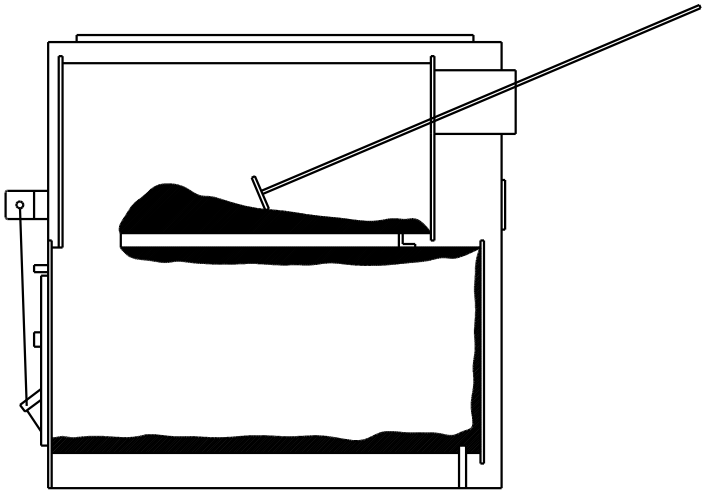
SCOTTY SS (DB202A) WOOD - ELECTRIC ADD ON ELECTRICAL SCHEMATIC - S202 - 9 APPROVED ELECTRIC FURNACE

USING PROVIDED SCRAPER/POKER REMOVE CREOSOTE FROM HEAT EXCHANGER



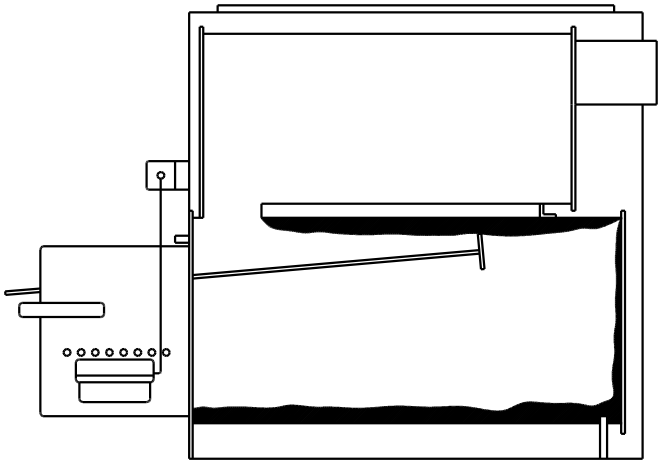
A

PUSH CREOSOTE FROM HEAT EXCHANGER INTO THE FIREBOX



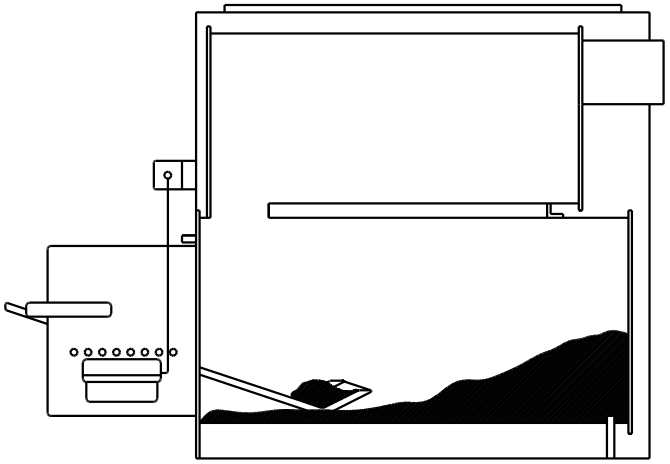
B

REMOVE CREOSOTE FROM THE TOP AND REAR OF THE HEAT EXCHANGER



C

SHOVEL ALL CRESOTE FROM THE FIREBOX THROUGH THE FRONT DOOR AND REPLACE THE FLUE PIPE



D

(CREOSOTE AMOUNTS EXAGERATED)

CLEANING FIG. S202-10

202M0014

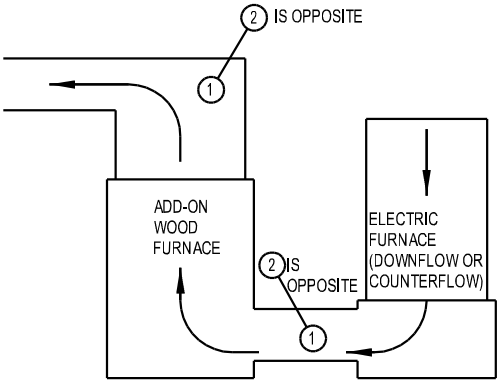
APPROVED FURNACE DUCTWORK CONFIGURATIONS

Figure S202-11

The following three ductwork configurations are approved:

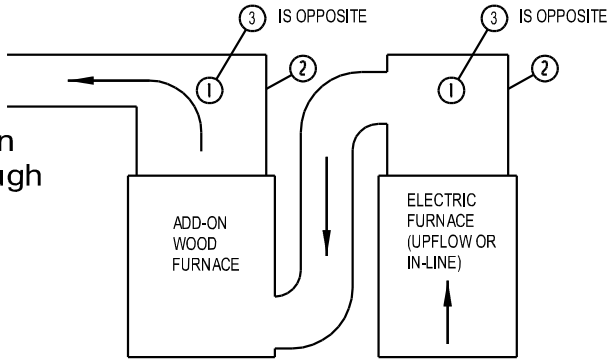
APPROVED 1 - Typical ductwork for add-on to an electric downflow furnace.

1 and 2 are static pressure test points.



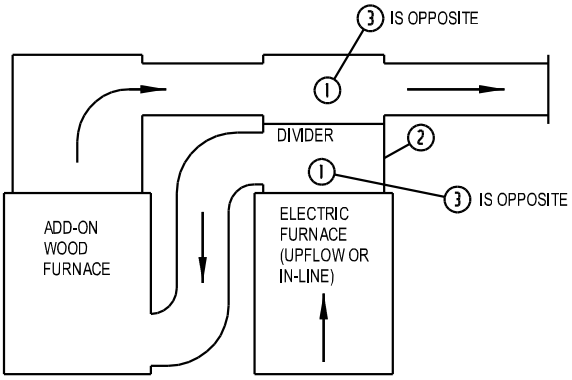
APPROVED 2 - Typical ductwork for add-on to an electric upflow furnace with straight-through (non Divided) plenum.

1 and 2 are static pressure test points.



APPROVED 3 - Typical ductwork for add-on to an electric upflow furnace - divided plenum.

1,2 and 3 are static pressure test points.



202M0001

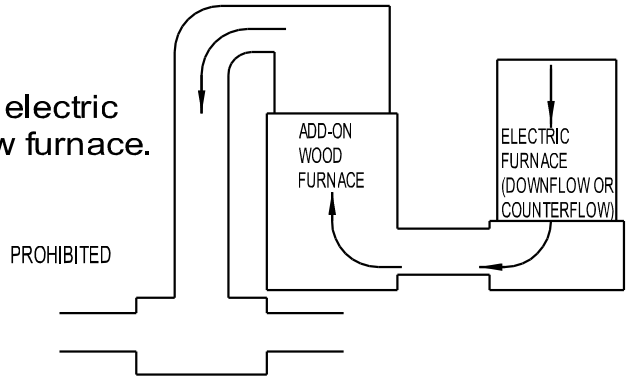
PROHIBITED FURNACE DUCTWORK CONFIGURATIONS

Figure S202-12

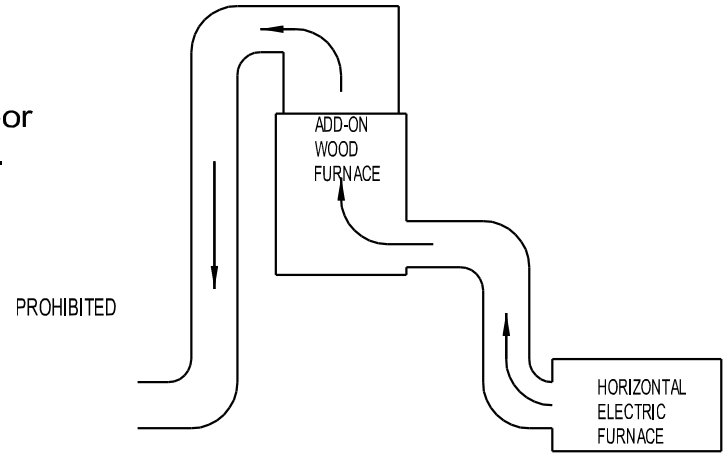
UNDER NO CIRCUMSTANCES CAN THE FOLLOWING CONFIGURATION BE USED

The following three ductwork configurations are prohibited:

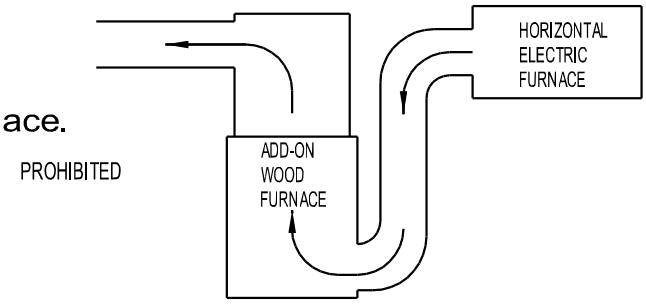
PROHIBITED 4 - Ductwork for add-on to an electric downflow furnace - Ductwork below furnace.



PROHIBITED 5 - Ductwork for add-on to floor mounted horizontal electric furnace.



PROHIBITED 6 - Ductwork for add-on to an ceiling mounted horizontal electric furnace.



Layouts 4,5 and 6 are PROHIBITED because of the danger of reverse flow occurring under power failure conditions. The location of the supply and return ducts are such that the natural convection of heat will not occur through the supply ducts.

Terms and Conditions of Warranty

1) The warranty is not assignable and rights pursuant to it are given only to the original purchaser of the furnace from an authorized retailer.

2) The warranty is null and void unless the original purchaser fully completes the warranty registration card and the card is received by Kerr Heating Products within 30 (thirty) days after installation of the furnace.

3) The warranty applies only to defects in the heat exchanger resulting from defective material and/or workmanship and the rights of the purchaser as to claims resulting from defects in other parts or accessories of the furnace supplied by suppliers or manufacturers other than Kerr are limited to the rights, if any, which a purchaser has against such other manufacturer or supplier and the warranty does not apply to any heat exchanger, parts or accessories which must be repaired or replaced for any reason other than as aforesaid including fire, flood, act of God or other cause.

4) The warranty of the heat exchanger against defects of material and/or workmanship is limited to its repair or replacement f.o.b. Kerr Heating Products, Parrsboro, Nova Scotia provided such defect is in the sole opinion of Kerr, the result of defective materials and/or workmanship and not the result of others carelessness or failure to erect, install, operate or maintain the furnace in accordance with the written instructions of Kerr. The cost of any labour for the removal or replacement of defective parts shall be the responsibility of the purchaser and Kerr shall be responsible only for the cost of repairing or replacing the defective part f.o.b. Kerr Heating Products, Parrsboro, Nova Scotia.

5) Without restricting the generality of condition 4 hereof, a furnace which is permanently distorted as a result of burning out of control is not to be considered to be defective in material or workmanship and is specifically exempted from coverage under the warranty.

6) Damage to the furnace or any part or accessory from abuse, misuse, overfiring or improper installation, or any furnace which has been altered or used in connection with third party equipment or materials is specifically excepted from coverage under this warranty.

7) The warranty of the repaired or replaced heat exchanger is limited to the period of the unexpired portion of the original warranty.

8) No furnace or part thereof shall be returned to Kerr except pursuant to Kerr's written authorization.

9) Except to the extent of the cost to the repair or replacement of the heat exchanger in accordance with the terms and conditions hereof Kerr shall not be liable for any direct, special, secondary, indirect, incidental or consequential damages resulting from failure to perform its obligations hereunder, or part or failure to perform function of any furnace or any part or for any cause beyond its control, including without limitation, fire, flood, strike, weather, impossible roads, labour disturbance, accident, shortages or labour, parts, material, acts of God, or Governmental authorities.

10) The exclusive remedy of the purchaser is as set forth herein and there are no representations, warranties, collateral agreements, or conditions affecting the sale and Kerr makes no warranty of merchantability or of fitness for any purpose and there is no warranty either expressed or implied beyond that set forth herein.

WARRANTY REGISTRATION CARD - This card must be filled in and mailed within 30 days.

Name of Purchaser: _____

Installed at (Street & Number): _____

City, Province/State & Postal/Zip Code: _____

Name of Installer: _____

Installer's Address: _____

Date Installed: _____ Model Number: _____ Serial Number: _____

This installation is for: ? New Home ? Existing Home

If replacement, make and type of previous heating system: ? Oil ? Wood ? Electric ? Gas

How did you find out about Kerr furnaces or boilers: ? Television ? Magazine ? Newspaper ? From a Friend

? Recommendation form Kerr Dealer ? Radio ? Internet ? Other (please specify): _____

Purchaser's Signature: _____ Date: _____

ATTENTION HEATING CONTRACTOR:

THIS WARRANTY IS FOR THE ORIGINAL PURCHASER AND SHOULD BE GIVEN TO HIM/HER OR PLACED IN SIGHT NEAR THE WOOD FURNACE.

SCOTTY SS

WOOD FURNACE

5 YEAR WARRANTY

Subject to the terms and conditions on the reverse side hereof Kerr Heating Products (hereinafter called “Kerr”) warrants as follows:

The heat exchanger of the wood furnace (hereinafter called the “furnace”) against defects of materials and/or workmanship appearing within a period of five years from date of installation.

All other parts and accessories of the furnace in accordance with the warranty (if any) given by the respective supplier or manufacturer to Kerr.

CAUTION:

When burning green (wet) wood careful inspection should be made of your chimney and smoke pipe to ensure a build up of creosote does not occur which may cause a flue fire.

PLACE STAMP HERE

Kerr Heating Products
12118 Hwy 209
PO Box 637
Parrsboro, Nova Scotia, Canada
B0M 1S0